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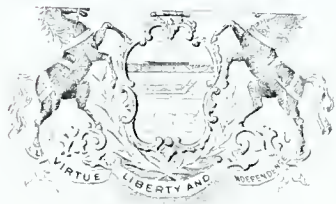


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WASHINGTON, D. C.—JANUARY 1, 1913.

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## ROTOPLUNGE PUMP.

By FRANK C. PERKINS.

AT Cardiff, England, there has been designed a most unique form of water lifting device known as the rotoplunge pump. This pump is connected directly to a steam engine, as indicated in the accompanying illustrations. Fig. 2 shows it discharging 200 gallons per minute at 40 revolutions per minute, also showing nine inch suction and delivery pipes.

cent mechanical efficiency claimed for this equipment is obtained. The pump is worked with 26 feet suction and 18 pounds of steam on boiler and the exhaust of engine is turned into the suction chamber of pump. There is therefore approximately 26 inches of vacuum aiding the engine, practically placing the piston of engine in equilibrium.

Many people wonder how the 250 per

It is stated that the pump is positive

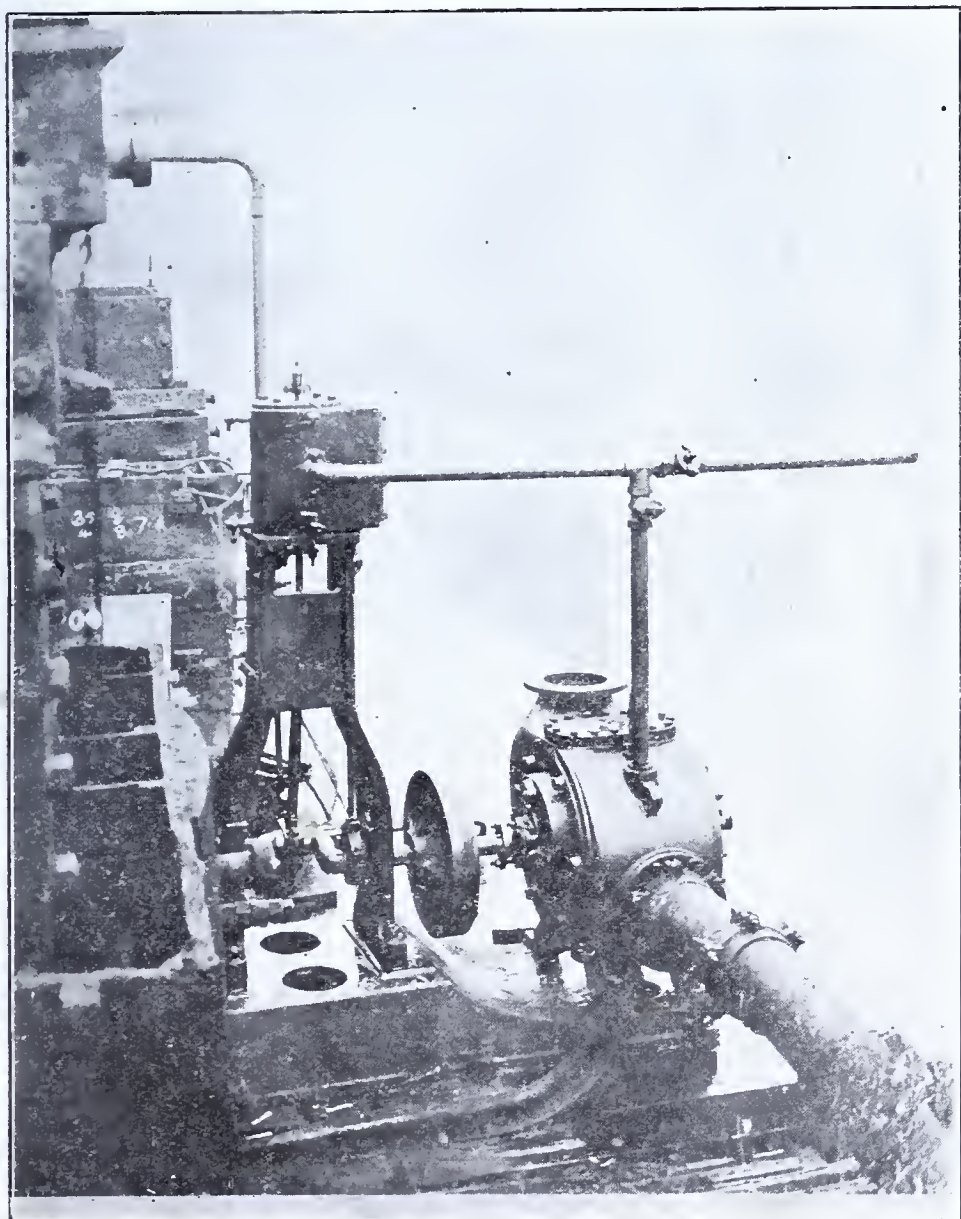


FIG. 1.—PUMP CONNECTED WITH STEAM ENGINE.



FIG. 2.—PUMP IN ACTION.

and can be worked at any speed, and that a definite quantity of water is raised or delivered at each revolution at all speeds. The exhaust steam entering the pump does not affect the suction in the least. The rotoplunge consists of a rotary plunger pump which is positive, and has no valves to get choked with dirt or chips. It is capable of creating a vacuum to within half an inch of the barometer and will

consume the exhaust of the engine, thus making the engine more effective and silent, as well as avoiding the nuisance of exhaust steam flying about. It is claimed that there can be no water hammer, and therefore no reaction, and it requires but a small consumption of fuel. A nine inch diameter pump worked by a single cylinder engine (without flywheel); steam at 60 pounds pressure, 200 revo-



lutions per minute, will discharge 60,000 gallons, or about 270 tons per hour on an overall head of 40 feet.

The pump can be regulated to suit any flow required, and will work equally as well at the slowest revolution possible as it will at full speed. It never requires priming, it is said, and it is easily accessible, the whole of the plunger being withdrawn and replaced in a very short time. It is claimed that the wear and tear are practically nil and that it will work for months without any attention, except for a little grease occasionally. It will pump semi-solids, therefore it is adapted for sewerage work; and it is also specially adapted for ship ballast and as a circulating pump for marine and land work, as well as for discharging oil in bulk. It occupies very little floor space, the room taken up by it, including the engine, being 5 feet 8 inches by 2 feet 6 inches.

hand side to a 9 inch outlet pipe. The pump rotates in the direction indicated by the arrow, and it will be clear, owing to the relative positions of the centres of the rotor shaft and roller races, that any cylinder which is passing the upper division piece will have its piston in its extreme outward position. When this top cylinder moves down in a counter clockwise direction, its piston will move inward, until, in the lowest position, the piston will be in its extreme inward position.

The result of this action is that as the cylinders pass the portion of the working chamber which communicates with the inlet pipe, they draw in charges which are finally trapped as the cylinders pass the lower division piece. On the other side of the vertical centre line the pistons move outward, and expel the charges into the discharge pipe, finally reaching their extreme outward position again when

minute. The lift was 25 feet 6 inches, with head overall, and the water delivered was about 270 tons, the coal consumption being 118 pounds, showing a very high efficiency for this type of pump.

#### Submarine Telephone.

The first commercially feasible submarine telephone is described in a late issue of the *Technical World Magazine*. The invention is that of an English engineer, and it is said to overthrow two basic laws of electricity. The cable employed for the demonstration test was a bare iron wire eleven miles long, stretching from the mainland to an island on the Pacific Coast, and lying in naked contact with the salt waters. The experiment was made in the presence of a U. S. cable ship and an assembly of electrical engineers and physicists. Over the bare wire was sent the sound of the human voice, and continuous and distinct conversation was kept up for hours. It has always been held that water was a conductor—although a poor one—of electricity, and that any bare wire conductor in contact therewith would be short circuited when a current of electricity passed over it. It has also been believed that it was not possible to have an electrical charge on a metallic conductor without that conductor's possessing an electrostatic capacity. But both these things were accomplished, and that under exacting conditions.

The inventor, Mr. Williams, it seems, has discovered the same law that Marconi discovered with his wireless waves. Once they were thrown forth, Marconi found that they would continue onward to an indefinite length. So Williams discovered that once the molecules of a wire were set vibrating by an electric charge, the vibration continued to the end of the wire, although it was so feeble that men had not found it. And he discovered that when a wire was placed in this condition by a "pilot current," it allowed a second current to slip over the wire much as a skater passes swiftly over thin ice. And it is during the time that this pilot current is on the line—which can be continuous if desired—and during the deposition, neutralization and clearing away of the charged ions and their products, that the talking current is sent in an undamped wave—waxing and waning after the manner of an alternating current, reproducing at the receiving end the exact wave length given it at the receiving end, and in the exact order of its receipt.

The commercial value of the invention may be judged from the fact that whereas it will cost the United States \$400,000 to lay the new cable to Alaska, according to present methods, the new invention would enable the work to be done for \$20,000. Above all other things, it will make possible actual conversation between continents. If experience confirms the value of this ingenious and inexpensive system, cabling and long distance calls across the ocean may become part of the ordinary day's work.

## BOOK REVIEWS.

### Concrete Worker's Reference Books,

By A. A. HOUGHTON,

The Norman W. Henley Publishing Co. N. Y.

Four more numbers of this series (the early ones of which were reviewed in these columns) have been issued. The first covers Concrete Bridges, Culverts and Sewers. Years of successful use have shown that concrete is invaluable in this form of construction. The various types of solid and reinforced arch, slab and girder concrete bridges are fully illustrated and explained. The molding of drains and sewers is treated, with forms for their construction.

Constructing Concrete Porches is treated in the next. It explains the construction of monolithic concrete and concrete block porches, together with the molding of columns, balusters, lattice and railings, as well as plain and reinforced types of porch floors. The ideas for molds presented in the illustrations of baluster, lattice and railing should be of value to every worker in this line.

Molding Concrete Fountains and Lawn Ornaments, is the subject of the following number. This is a most profitable branch of the industry, and one that may be successfully added to any retail concrete plant. The plaster system has proven a success for the workman of average skill who, desiring but a limited number of casts of one design, has been thus enabled to perfect the same without the expense of constructing a mold. Being reinforced with metal, the vase or other ornament is lighter and may be easily moved. The writer has tried to present simple designs that are yet unusual.

Molding Concrete Flower Pots, Boxes, Jardinieres, etc. is the title of another treatise which explains the construction of the molds for various designs, together with the reinforcement and surface treatment of the casts after molding. The method of inlaying the work with colored pebbles, etc., and of cutting ornaments after molding, is included.

### Isometric Drawing Paper.

Isometric perspective or projection has never been popular, because it has always been surrounded by technicalities and involved description. Special knowledge on the subject is now rendered unnecessary by the printing of isometric ruled paper, making it easy to complete drawings without calculation. It affords a means for making a scaled sketch, showing an article in its entirety, so that the pattern maker can get to work without wasting time in studying the details of an ordinary three view drawing; the machine designer can lay out new plans and get an idea of how a completed device will look; Patent Office draftsmen will find it useful in their work; the architect can make a graphic display of his plans; and there are many other branches of mechanical drawing and designing which will use the paper to advantage. A drawing may be scaled in the three main directions, the axes of which are 120 degrees apart, one being vertical and the others being at 30 degrees from the horizontal, by the use of this paper. It is printed by the Norman W. Henley Publishing Co., New York.

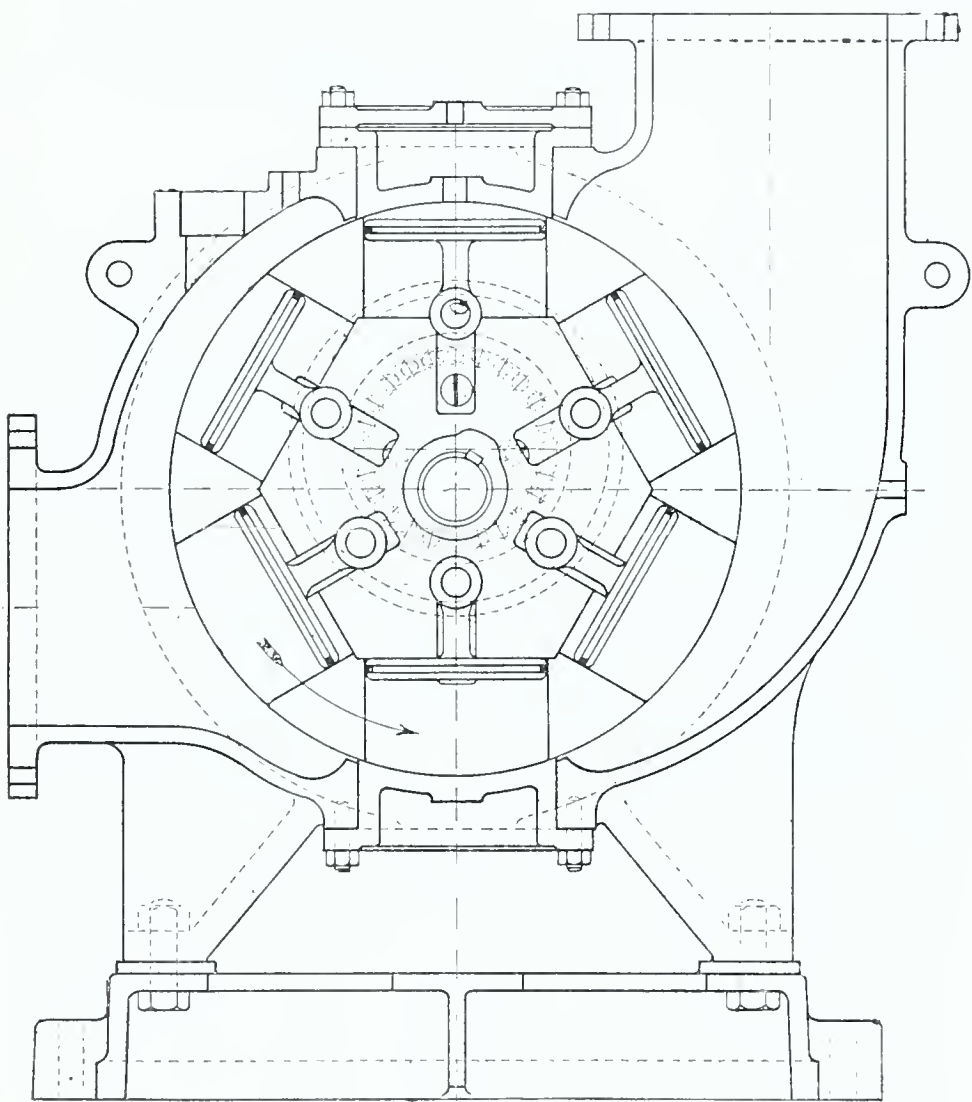


FIG. 3—SECTIONAL VIEW.

The details of construction of the rotoplunge pump may be seen in Fig. 3. It consists of a cylindrical casing having inlet passages and containing a central hub or rotor, in which a series of radial cylinders are formed. These cylinders are fitted with pistons which are pivoted on to a cross head common to all, running in roller races fixed to the inside of the two ends of the casing. The roller races are set eccentrically with respect to the shaft which carries the rotor, so that as this latter rotates, the pistons move in and out radially with respect to it. Slots are formed in the side cheeks of the rotor to allow for the in and out movement of the spindles, which are fitted to the cross head and carry the various pistons. The working chamber leads to a 9 inch inlet pipe on the left hand side, and on the right

directly under the upper division piece. One of these pumps has twelve pistons, each 7 inches in diameter and with a 3 inch stroke. It is intended to make 200 revolutions per minute. The pump, weighing only 16 cwt., does not require priming, and runs very silently, as there is no pulsation or reaction, and consequently no vibration. The flow of water from the outlet is constant. As the pump has no valves, it is suitable for pumping semi-solids.

The possibility of using the pump as a condenser for the engine driving it is a unique feature. It is stated that on a vacuum test, the pump showed 29.95 inches when the barometer was standing at 30.15 inches. During another test, to ascertain the fuel consumption for a one hour run, the steam pressure was 60 pounds per square inch, speed 200 revolutions per



## OIL FIRED STEEL CONVERTER.

MANY are the uses to which oil is being applied as fuel, and one of the latest applications is in the steel converter. Although this appliance is of comparatively recent appearance, it has passed the experimental stage. One of these devices, with a capacity of three tons, has been in service for a year and a half in England, and it is being adopted in other places. This type of converter is designed for the production of all kinds of steel, from soft steel castings to special steels of the highest grades.

This English converter is lined with ordinary silica firebrick and is used not only for the conversion or blowing of iron, but is also used for melting the actual charge of iron and scrap by means of oil fuel. In order that a large surface of metal may be exposed to the action of the oil burners, the vessel is made oval in section, and for convenience in working, the vessel, besides being mounted on trunnions working in roller bearings on the usual lines, is also mounted on a turbine which can be revolved in a horizontal plane.

About three tons of pig iron and scrap can easily be charged by three men in something less than 10 minutes, and when charged the vessel is moved through an angle of 90 degrees into the necessary position for melting. Cold air is delivered from the blower into the pipes and passes through the heater, the discharge from which is coupled to the converter through a central pipe, the air having been raised to a pressure of about  $\frac{3}{4}$  of a lb. per square inch and to a temperature of about 800 degrees Fahr. This hot air is used for burning the oil and a very perfect combustion is obtained with a resulting economy of fuel. This arrangement is an important feature of the plant, serving as it does to recover the waste heat arising from the combustion of the oil during melting. A series of ribbed cast-iron pipes of U-section is provided, through which the blast passes. The heat from the vessel passes round and among these pipes on its journey to the chimney. Thus the cold air delivered from the blower is raised to the high temperature above noted before it passes to the converter.

The hot gases from the oil are naturally discharged from the nose of the vessel, and are induced through the heater by means of the chimney stack at the end. It is claimed that with a three ton converter the metal can be melted in about one and a hours and is then at a high temperature and in condition for blowing, which process only takes from fifteen to twenty-five minutes, so that a blow during every two hours can easily be made.

In blowing, the vessel is merely tipped upwards, the necessary hood and chimney for conveying away the fumes being fixed directly above the air-heater. It will, however, be understood that if for any reason it is more convenient to arrange this hood and

chimney in any other position, the vessel can readily be turned round to such a position. When the vessel is in position for pouring its contents into the ladle, it is turned through 180 degrees in a horizontal plane from the position in which the blow actually took place. It is of interest to note that the blast for blowing is supplied from the same blower that supplies the air for melting, but in this latter case the air pressure varies from 3 to  $4\frac{1}{2}$  pounds per square inch.

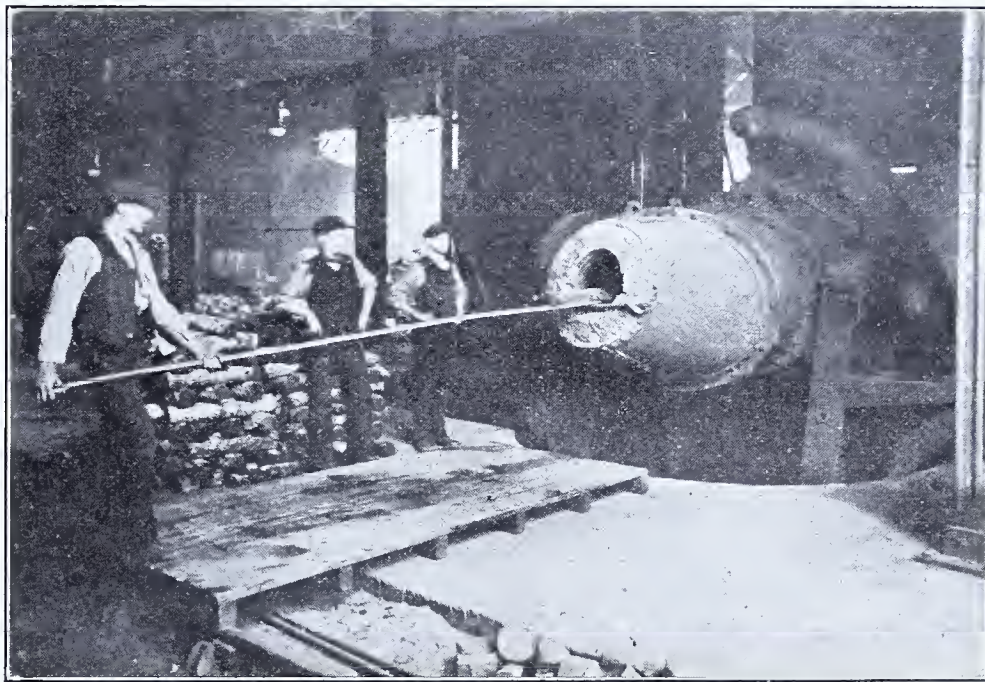


FIG. 1.—CONVERTER IN CHARGING POSITION.

The oil used for melting is the crudest petroleum available, and can be readily stored in any large vessel, such as an old boiler. From this storage tank it can be forced by either the blower or an air compressor into a smaller tank, which contains a sufficient quantity of oil for from five to six meltings. This service tank is fitted with a coil through which hot air or steam can circulate, and the temperature of the oil is so increased as to decrease its viscosity.

avoided, while the loss of iron resulting from cupola melting is saved. The high temperature of the melted charge allows of the use of pig irons low in silicon, or the use of higher percentages of scrap, and the metal is in such a state of extreme fluidity that it is possible to make the most difficult and intricate castings. The amount of space occupied is said to be comparatively small, due to the fact that the vessel can be turned in a horizontal plane, so that the arrangements for

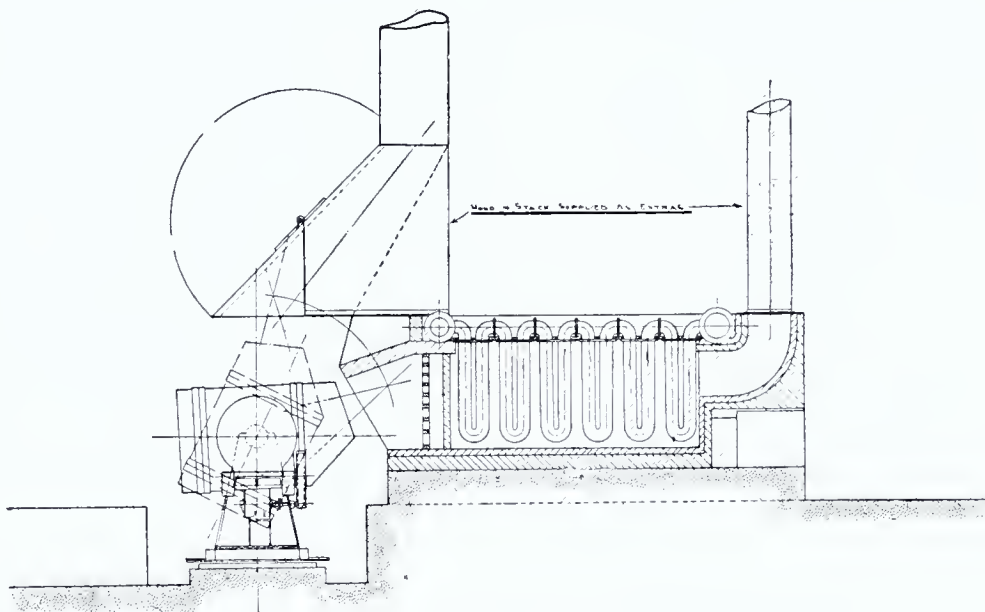


FIG. 2.—DETAIL OF CONSTRUCTION.

This tank is connected with a small independently driven compressor, which will maintain a constant pressure of from 30 to 35 pounds per square inch and force the necessary quantity of oil through a flexible pipe

charging, blowing and pouring can be provided in any convenient position, while a relatively small amount of power is required. With this oil converter, cast steel wheels have been made with a center of 4 feet 9 inches

diameter, and of the following analysis; carbon 17 per cent, manganese 40 per cent, silicon 17 per cent, sulphur .025 per cent: machined solid, tensile test, nine tons per square inch: bend test, one inch square 180 degrees without breaking, elongation 30 per cent in two inches.

The ingots produced for high carbon steel wire with this oil converter have the following chemical composition: carbon 72 per cent, manganese 40 per cent, silicon .01 per cent, phosphorous .017 per cent, sulphur .015 per cent: rolled to five gauge rod, drawn to rope wire, stood work well.

It is held that ingots have been produced in this oil converter for low carbon steel for seamless solid drawn tubes with the following analysis. Carbon .08 per cent, manganese 18 per cent, silicon .011 per cent, phosphorus .011 per cent, sulphur .01 per cent. tube drawn well and stood British Admiralty tests, tensile test, 23.6 tons per square inch; stretch test 43 per cent in two inches; bend test, one square inch, 18 degrees unbroken. It is stated that the carbon tool steel forges well and has proved very successful for chipping and caulking chisels and pneumatic tools, while the high speed tool is of excellent quality of mild steel forgings.

## Smasher-Proof Trunk.

A trunk recently tested in Los Angeles is expected to withstand the roughest handling that can be given it by baggage smashers. It was dropped from the roof of a building into a pit below, a distance of over two hundred feet. The trunk, which weighed 68 pounds, hit the ground heavily, but was injured so little that it could be used without repair. It is made of hard wood, thin veneers of the same covering it and running in various directions, which constitutes a very light and at the same time tough piece of baggage.

## How the Blind can Hear Light.

Hearing the "sound" of moonlight appears a fantastic notion, but that such a thing is possible is claimed by the inventor of the optophone. Tests of the instrument are described in *Popular Mechanics*. The optophone is a small camera-like box, open at one end, which, if pointed at the light, causes the instrument to produce sound that is transmitted by sensitive receivers of the type used in telephones. The different tones, and degrees of sound, enable the user of the device to determine the character of the body passing between him and the light. A blind man with this in his hand can locate the window in a room, and can tell the number of people who pass between him and the window, by the intervals of light between them. On a moonlight night, the inventor asserts, one can hear the moon, and when the sun is shining it can be recognized by the noise it makes. He also thinks that his invention will prove useful in discovering the light of the stars that are not visible, as well as in other lines. The invention is based on the well-known property of selenium of changing its electrical resistance under the influence of light.

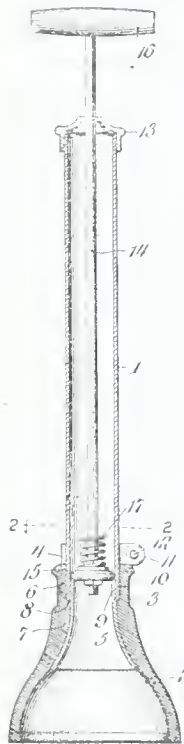


## CLEVER NEW PATENTS.

Pipe Cleaner.—Combined Drum and Cymbal Beater.—Cherry Seeder.—Manufacture of Rubber Footwear.

### Pipe Cleaner.

Obstructed pipes are one of the most disagreeable things that householders have to deal with, usually demanding the services of a plumber. An implement designed to clear out accumulations in drain pipes has been patented by Anthony J. Yoggerst & Lawrence C. Yoggerst, of Springfield, Ill. It comprises the usual air pump with the rubber cup at its lower end, the neck of which is fitted on the end of the pump cylinder and held between an



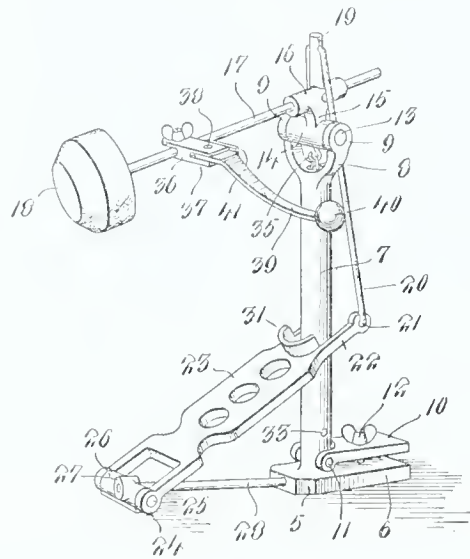
exterior collar 4, (as shown in the cut) and an interior tapered tube 5. The interior of the upper portion of the neck of the cup is larger than the intermediate portion, the resulting shoulder fitting against the lower end of the cylinder. The tube 5 has its upper end threaded to engage with the end of the pump cylinder, and it is tapered so as to fit smoothly and snugly against the intermediate portion 7 of the cup, and thus support the neck of the same and make an air tight connection. The clamping collar 4

has ends perforated to receive a bolt to clamp the collar on the cylinder. The collar forms a stop for the neck of the cup. In assembling the parts, the collar is arranged on the cylinder and the neck of the cup applied to the lower end. Then the collar is clamped in position, the tapered tube screwed into the lower end of the cylinder, and the rubber cup is held firmly in place on the cylinder and tube, the flared lower portion of the latter preventing any downward or outward movement of the cup, while the collar holds it against upward or inward movement. The upper end of the tube 5 forms a valve seat for the piston in the cylinder. When the pump is operated, it will force all the obstruction through the pipe without producing any splash or subjecting the rubber cup to the usual injurious wear.

### Combined Drum and Cymbal Beater.

The marvelous achievements of the man in the orchestra who plays half a dozen instruments at once, will be rendered still more remarkable by the aid of an invention of Floyd L. Fraser, of Wichita, Kans., of a combined drum and cymbal beater. In this invention a drum and cymbal can be simultaneously sounded by foot pressure, allowing freedom for the hands to operate other musical instruments. A direct and positive blow is

also transmitted, effecting unity of sound: or it may be adapted to work on cymbal or drum alone. As shown in the drawing, the post swingingly supports the beater rod holder. The movable jaw 10 and the stationary jaw 6 are clamped in position on the hoop of the drum. Mounted in the fork 8 is a pivot 13 on which is engaged the sleeve of the drum beating staff holder, which has a crank terminating in a sleeve at right angles to the sleeve 14, and holding a drum beater 17. An arm 19 on the sleeve 16 has an inverted V-shaped wire bail 20, the ends of which engage in ears 22 on the foot pedal 23, the same also engaging a pivot in a cross head on the base. In the cross head is engaged a connecting rod 28, the inner end of which goes through the base into a bracket

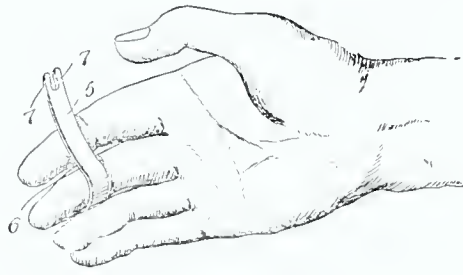


adapted to rigidly connect the rod to the base. The pedal has a flange which keeps the foot of the operator from contacting with the post 7. In this post is a retractile spring, to tension or retract the beater. On the beater is an arm with a ball end, adapted to strike the cymbal when the drum is being beaten. The arm may, by means of a spring, be swung around parallel to the staff when the cymbal is not to be sounded. Normally the arm is held in alignment with the clip 36, so that the ball will strike the cymbal. It will be seen that this device enables the separate or simultaneous operation of the two instruments.

### Cherry Seeder.

Fruit is being more and more used as an article of daily diet, and the conserving of fresh fruits for use during the winter season has come to be a widespread industry. The removal of the seeds from small fruits, such as cherries, grapes, and the like, is a tedious process, and a device recently patented by Charles S. Hendrick, of Clinton, Ill., will meet popular favor. The device, as seen in the illustration herewith, is formed of a thin band of metal, bent to form a loop through which one of the fingers of the operator passes. The opposite end of the band

is slotted or bifurcated to form arms, which are curved upwardly adjacent to the ends, and are then rounded. When the device is adjusted on the hand, the arms extend outwardly toward the thumb. The operator clasps the fruit

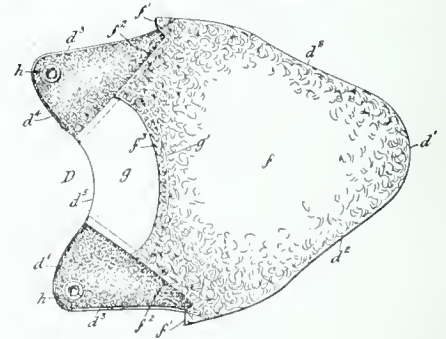
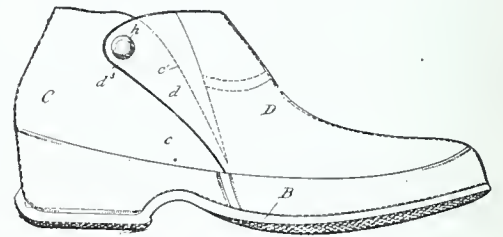


and pierces the body of the same with the sharpened ends of the arms, so that the curved portions of the latter engage with the stone, dislodging and ejecting it. This device, it is obvious, is extremely simple, but at the same time it offers an efficient method of removing the stones without injuring the fruit.

### Manufacture of Rubber Footwear.

A novel form of overshoe made of cloth and rubber, the vamp of which is formed of a single piece of goods, enabling it to shed snow and water better than the ordinary rubber shoe, has been patented by Maurice C. Clark, of Providence, R. I. As seen in the cut, the counter *C* of the shoe is made of one piece of material with the quarters *c c* extending from the sides around the back and joined to the sole and heel. The front edges thereof go up from the sides of the sole just forward of the heel and round off into the top edge of the counter. The vamp is made of one continuous piece, extending over the toe and instep, around the sides, and overlapping the quarters. The vamp is formed of two thicknesses of material, the outer one of elastic textile fitting the sides of the sole and the toe, and lined as follows: The main portion, as shown at *f*, is of felt, made in the same piece with the lining for the counter. The portions extending around the sides to line the counter are indicated at

*f*<sup>1</sup> *f*<sup>1</sup>, broken off. The felt is cemented to the inside of the fabric vamp but does not completely cover the latter, being cut away at *f*<sup>2</sup> *f*<sup>2</sup> where the vamp extends in the wings or flaps, and also at *f*<sup>3</sup> so that it does not reach clear to the edge *d*<sup>5</sup>. The flaps are preferably faced on the inside with pieces of the same material as the outer portion of the vamp, reinforced with stays of canvas cemented between the cloth of the outer vamp and the inner lining. Across the top of the vamp run strips of thin sheet rubber, which is cemented to the under side of the vamp and overlaps the edges of the pieces *d*<sup>4</sup> *d*<sup>4</sup>. The edge of the felt lining overlaps the edge of the rubber *g*. This strip goes over the instep, giving elasticity. The openings between the vamp and the counter provide for inserting the foot into the overshoe, and by securing flaps *d*<sup>3</sup> *d*<sup>3</sup> to the sides of the shoe the same is fastened snugly around the ankle. A strap runs from the back through



openings in the inner fabric, and snaps into a catch, to adjust the top of the shoe to variously sized ankles. Flexible gores make the shoe still more waterproof. It will be seen that this overshoe dispenses with the usual buckles employed, which are inconvenient and uncomfortable. The shoe presents a neat appearance, and resists weather better than the old form in use.

# PATENTS

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## LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

### SAMSON CORDAGE WORKS v. PURITAN CORDAGE MILLS.

(District Court, W. D. Kentucky. July 3, 1912. 197 F. R. p. 205.)

#### 1. TRADE-MARKS AND TRADE-NAMES — UNLAWFUL COMPETITION—USE OF COLORED MATERIALS IN MANUFACTURE.

Where complainant, in the manufacture of cordage, used one color strand, the other strands being of another and uniform color, so as to make spots or check marks on the finished cord or rope where the colored strand came to the surface, such checks or spots did not constitute a mark indicating origin or distinctive feature of complainant's cordage which could not be appropriated by any other maker, and hence defendant's use of one or more colored strands in its cordage did not constitute unlawful competition; there being no exclusive right in the use of colors in the manufacture of goods.

#### 2. TRADE-MARKS AND TRADE-NAMES—TEMPORARY INJUNCTION—DISCRETION.

Where complainant sued for infringement of an alleged trade-mark, consisting of check marks or spots on cordage resulting from the use of a colored strand in the manufacture thereof, and on being beaten in that suit appealed to the Circuit Court of Appeals, and pending such appeal instituted another suit on the theory that defendant's use of a colored strand in its product constituted unlawful competition, the court, in the exercise of discretion, would not grant a temporary injunction restraining defendant's use of such colored strand during the pendency of the appeal.

### CARLSON MOTOR & TRUCK COMPANY v. MAXWELL-BRISCOE MOTOR CO.

(Circuit Court of Appeals, Second Circuit. May 6, 1912. 197 F. R. p. 309.)

#### PATENTS—VALIDITY AND INFRINGEMENT—INTERNAL COMBUSTION ENGINE.

The Carlson patent, No. 797,553, claim 1, for improvements in internal combustion engines, designed to facilitate access to the inside working mechanism for the purpose of adjustment or to make repairs, while for an improvement only, was not anticipated and in the limited field covered discloses patentable invention; also, held infringed.

### A. D. HOWE MACH. CO. v. COFFIELD MOTOR WASHER COMPANY.

(Circuit Court of Appeals, Fourth Circuit. July 9, 1912. 197 F. R. p. 541.)

#### 1. PATENTS — REISSUE — BROADENING OF CLAIMS.

While the reissue may not claim an invention not clearly shown in the original patent, a reissue is not necessarily void because its claims are broader than those of the original.

#### 2. PATENTS—VALIDITY OF REISSUE—LACHES.

A delay of seven and a half months before applying for a reissue is not of itself fatal to the reissue if rights of others have not intervened.

#### 3. PATENTS—VALIDITY AND INFRINGEMENT—WATER MOTOR.

The Coffield reissue patent, No. 12,719 (original No. 807,779,) for a water motor, is within the scope of the original patent, was not anticipated, and discloses novelty and invention, being a pioneer in a limited field, and in such field entitled to a liberal construction; also, held infringed.

#### 4. PATENTS—CONSTRUCTION—PIONEER PATENTS.

A patent may be a pioneer in a wide field or in a narrow one.

### REPUBLIC RUBBER CO. v. MORGAN & WRIGHT.

(Circuit Court of Appeals, Second Circuit. May 13, 1912. 197 F. R. p. 549.)

#### PATENTS—INVENTION—VEHICLE TIRE.

The Mell patent, No. 898,907, for a tire for vehicle wheels having protecting studs around the tread surface to prevent skid-

ding, in view of the prior art, and especially of the tire of the British patent to Healy in 1895, is void for lack of invention; no more than mechanical skill being required to modify the Healy tire, as was in fact done by Mell, to better adapt it to use on automobiles.

### WASHBURNE v. CONSOLIDATED SAFETY PIN CO.

(Circuit Court, D. New Jersey. June 24, 1912. 197 F. R. p. 552.)

#### 1. PATENTS—ANTICIPATION—PRIOR PATENT INCLUDING SAME DEVICE.

A device which is an essential part of an invention previously patented cannot be made the subject of a separate patent.

#### 2. PATENTS—ANTICIPATION—CUFF FASTENER.

The Washburne patent, No. 517,084, for a cuff fastener, is void for anticipation by patent No. 500,640 to the same patentee for a collar fastener, which is essentially a duplication of the device of the latter patent to adapt it to a somewhat different use. Claims 1 and 2, if conceded valid, must be narrowly construed in view of broader rejected claims, and of the prior art, and, as so construed, held not infringed.

#### 3. PATENTS — CONSTRUCTION — LETTERED CLAIMS.

Letters used in the claims of a patent in describing the device as a general rule are restrictive, and, when the advance in the art is slight and the field of invention limited, will confine the inventor to what he has definitely shown and claimed.

#### 4. PATENTS—INFRINGEMENT—CLASP.

The Washburne patent, No. 553,972, for a clasp or fastener, narrowly construed as required by the prior art, held not infringed.

### GENERAL ELECTRIC CO. v. ALLIS-CHALMERS CO.

(Circuit Court, D. New Jersey. June 26, 1912. 197 F. R. p. 558.)

#### 1. PATENTS—INFRINGEMENT—PRESUMPTION FROM GRANTING OF SEPARATE PATENTS.

The presumption is that a device for which a patent is granted does not infringe a prior patent.

#### 2. PATENTS — INFRINGEMENT — ELECTRICAL TRANSFORMERS.

The Moody patent, No. 591,869, for an electric transformer, is limited by the prior art to a transformer having two separate ventilating systems independently controlled, one for cooling the coils and the other the core. As so limited, held not infringed by the device of the Nichols patent, No. 573,167, which does not contain such separate ventilating systems.

### COLDWELL-GILDARD CO. et al. v. STAFFORD CO.

(Circuit Court, D. Massachusetts. June 27, 1912. 197 F. R. p. 569.)

#### 1. PATENTS—REISSUES—NEW CLAIMS FOR SEPARATE AND DISTINCT PARTS OF INVENTION.

Under the provision of Rev. St. § 4916 (U. S. Comp. St. 1901, p. 3393), authorizing reissue of defective patents, that "the Commissioner may, in his discretion, cause several patents to be issued for distinct and separate parts of the thing patented, upon demand of the applicant," he may also allow new and separate claims for such separate and distinct parts.

#### 2. PATENTS—REISSUE—VALIDITY—IDENTITY OF INVENTION—"SAME INVENTION."

The question whether a reissue patent is for the "same invention," within Rev. St. § 4916 (U. S. Comp. St. 1901, p. 3393), should be considered not merely as a verbal question, but as a substantial question to be solved by reference to the structure itself as well as to the specification and claims. The reissue may properly correct insufficiency of description of what is clearly shown in drawings as an obvious feature of the structure, and may add claims adequate to protect the substance of an invention or inventions that fairly appear in the original and which the inventor sought to protect.

#### 3. PATENTS—VALIDITY AND INFRINGEMENT—STOP-MOTION FOR LOOMS.

The Coldwell & Gildard reissue patent, No. 11,923 (original No. 637,234), for a stop-motion for looms, covers, as did the original, as a separate invention, a special form of drop-bar capable of use with either mechanically or electrically operated stop-motions which discloses patentable invention and merit in that it prevents the chafing of the warp threads. Such feature is more fully covered in the new claims of the reissue, which are within the invention of the original patent, and valid; also, held infringed.

### GILLETTE SAFETY RAZOR CO. v. DURHAM DUPLEX RAZOR CO.

(Circuit Court, D. New Jersey. June 13, 1912. 197 F. R. p. 574.)

#### 1. PATENTS—INFRINGEMENT—EVIDENCE.

The granting of a patent for a device similar to one covered by a prior patent is prima facie evidence that there is a substantial difference between the two.

#### 2. PATENTS — SUIT FOR INFRINGEMENT — PRELIMINARY INJUNCTION.

The power to grant a preliminary injunction in an infringement suit is discretionary, and should be exercised with the greatest care.

#### 3. PATENTS — PRELIMINARY INJUNCTION—GROUNDS.

That greater injury is likely to result to a defendant from the granting of a preliminary injunction than would result from its refusal in case the court should be in error, is a matter proper to be considered on an application for such writ.

#### 4. PATENTS — SUIT FOR INFRINGEMENT — PRELIMINARY INJUNCTION.

A preliminary injunction denied in a suit for infringement of the Gillette patent, No. 775,134, for a safety razor, on affidavits leaving the question of infringement doubtful, and showing that it might result in irreparable injury to the defendant.

### MOXIE CO. v. BAGOIAN.

(Circuit Court, D. New Hampshire. June 22, 1912. 197 F. R. p. 650.)

#### 1. TRADE-MARKS AND TRADE-NAMES—UNLAWFUL COMPETITION—CONTAINERS.

Complainant, as part of an advertising campaign for the sale of a beverage called "Moxie," furnished to dealers for use in selling the same glasses in which the word "Moxie" was prominently blown. Defendant having received some of these glasses later began to sell a competing beverage therefrom. Held, that such use of complainant's glasses was wrongful, and that it was entitled to an injunction restraining the same.

#### 2. TRADE-MARKS AND TRADE-NAMES—UNLAWFUL COMPETITION—COSTS.

Where, in a suit to restrain the sale of a beverage in bottles resembling those of complainant, the court found that the resemblance was not sufficient to entitle complainant to a decree on that ground, but that complainant was entitled to an injunction restraining defendant's sale of a competing beverage in complainant's glasses, which was an inconsequential part of the litigation, costs would not be granted to either party.

### ELECTRIC STORAGE BATTERY CO. v. GOULD STORAGE BATTERY CO.

(Circuit Court, W. D. New York. July 3, 1912. 197 F. R. p. 715.)

#### 1. PATENTS—INFRINGEMENT—MACHINE FOR MAKING GRIDS.

The Madden patent, No. 559,224, for a machine for making grids for secondary battery plates, claim 2, in view of the machine previously invented by the patentee and covered by patent No. 572,563, application for which was pending at the same time, cannot be given the broad construction its literal wording would imply, but must be construed narrowly and as not covering the machine of the later patent.

#### 2. PATENTS—ASSIGNMENT—OPERATION AND EFFECT.

A purchaser of an invention for which an application for a patent is pending, with knowledge that the inventor had assigned a previous invention of a similar character to others by an assignment which was recorded, is put upon inquiry and cannot rely on statements of the assignor as to what was covered by the prior assignment.

### EIBEL PROCESS CO. v. REMINGTON-MARTIN CO.

(Circuit Court, N. D. New York. July 13, 1912. 197 F. R. p. 760.)

#### PATENTS—SUIT FOR INFRINGEMENT—RIGHT TO INSPECTION OF ALLEGED INFRINGING MACHINES.

Suspicion of infringement is not enough to justify an order requiring the defendant in an infringement suit to permit complainant to inspect machines used in its manufacturing plant and alleged to infringe, and unless in exceptional cases such an order will not be made on affidavits made prior to the taking of testimony in the case.

### ELBS v. ROCHESTER EGG CARRIER CO.

(Circuit Court, W. D. New York. July 22, 1910. 197 F. R. p. 764.)

#### PATENTS — VALIDITY AND INFRINGEMENT—EGG CARRIER.

The Jenne patent, No. 722,512, for an egg carrier consisting of a pasteboard case with egg cells, for carrying and delivering eggs to consumers, covers a narrow improvement on prior structures and is limited to the combination of a cover, with flaring flanges and partition strips between the cells, having the upper portion of the ends next the side of the case cut away to receive the flanges of the cover, which thus have a cushioning effect affording an additional protection to the eggs. As so construed, held not infringed.

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## MECHANICAL INVENTIONS

Patents for which have been procured through the Patent Soliciting Office of E. G. Siggers, Patent Lawyer, Washington, D. C.

Ervin S. Mummert, Hanover, Pa., inventor: Mummert, Wolf & Dixon Co., Hanover, Pa., assignees. Grinding Machine.—The aim of the present invention is to provide a grinding machine for sharpening all kinds of edged tools, such as are used in pattern shops, planing mills, furniture factories, vehicle works, and all kinds of wood working shops. The machine is provided with coarse and fine grinding wheels, and is equipped with an adjustable tool holder adapted to enable a flat tool, such as a plane bit or chisel, to be held in the proper position to impart to the tool the desired bevel, and capable of permitting the tool to be readily transferred from one grinding wheel to the other and of permitting the operator to exert the necessary pressure on the tool for securing the desired abrading action. The machine is also provided with a narrow grinding wheel for gumming saws, and a grinding cone for sharpening wood working gouges. The gearing for simultaneously rotating the stropping and grinding devices is compactly arranged, and the driving belt is located at the back of the machine so as to be out of the way.

James D. Perrott, Beaver Falls, Pa. Stair Covering.—The object of this invention is to provide a stair covering adapted to present a smooth neat appearance, and capable of being readily applied to steps of various thicknesses, and of enabling the same to be thoroughly cleaned without removing the stair covering. The device consists of a mat having its front portion extending downwardly and rearwardly to fit the projecting nose of the step, and an approximately U-shaped nose strip arranged at the inner or lower face of the mat, and having its lower edge bent outwardly around the front edge of the mat to form a metallic binding or casing, said nose strip being secured to the step and constituting the means for attaching the mat to the same.

Granville Rboades, London, Ohio, inventor: Rboades Novelty Company, London, Ohio, assignee. Device for Holding and Opening Paper Bags.—This invention is designed to provide a device adapted to hold a number of paper bags in position to be removed one at a time by a salesman, and capable of gripping the bags sufficiently tight to cause them to open automatically as they are removed from the holder, and equipped with means for permitting only the bag pulled upon to be removed. The device comprises a support having a projecting arm provided with a longitudinal guide slot and having a depending flange, a pointed projection mounted on and extending inwardly from the flange, and a spring carried by the support and guided in the longitudinal slot and having a loop for engaging the bags located opposite the pointed projection and maintained in such position by the said slot.

Chas. D. Spates, Digby, Nova Scotia, Canada, inventor: Clarence Jameson, assignee, Digby, Nova Scotia, Can. Window Lift Lock and Holder.—It is the purpose of the present invention to provide a device adapted to be readily

applied to windows having balance sashes, to enable the same to be readily raised and lowered, and capable of holding the sashes in their adjustment and of securely locking a sash in its closed position. The invention comprises a casing designed to be mounted on a sash, a horizontal sliding bolt guided in the casing and extending through the side of the sash and provided with operating means, said bolt being also provided in its upper edge with bearing recesses, and an upright lever concealed within the casing and located above the bolt and fulcrumed at an intermediate point and having angularly related arms, the upper arm being connected with the sash balance and the lower arm being fitted in the recess of the bolt, whereby the sash balance will actuate the bolt and move the same to its engaging position.

Rufus Boldry, Chatsworth, Illinois, inventor: John Carney, Chatsworth, Ill., assignee. Marker for Corn Planters.—The object of this invention is to provide a device designed for raising, lowering and reversing land markers, and adapted to be readily applied to an ordinary planter, and capable of easy operation to raise the marker to clear a stump or other obstruction, and to reverse the marker from one side of the machine to the other when turning at the end of a row. The land marker comprises in its construction a pivotally mounted marker bar arranged to swing transversely of a planter from one side to the other, a lever connected with the marker bar for swinging the same, and a spring connected directly to the lever and arranged to be placed under tension by the swinging of the marker bar, thereby producing a slow downward movement of the marker bar and assisting the operator in both lifting and controlling the marker.

William L. Chrysler, Eugene, Ore., inventor: James O. Snyder, Eugene, Ore., assignee. Pitman Connection.—It is the aim of the present invention to provide a pitman connection, designed particularly for use in connection with the knife heads of mowing machines, enabling a knife or cutter bar to be instantly detached without removing a bolt or similar fastening device, and adapted to engage yieldably the ball bearing of a knife head and maintain a constant pressure of the proper degree of tension against the ball bearing so as to take up wear of the parts automatically and to prevent lost motion. The pitman connection includes a pair of cooperating spoons, one of the spoons being pivoted, a spring connected with the pivoted spoon, and a catch for detachably engaging the spring to maintain the same under tension.

Hosea J. Green, Chattanooga, Tenn. Draft Controlling Device.—This invention has for its object to provide for open fire grates a draft controlling device adapted to produce a draft up through the bottom of an open grate by entirely or partially closing the space above the grate according to the intensity of the fire desired. The device is equipped with a slidable door adapted when in use to be entirely concealed from view, and capable of ready operation from the front to arrange it in the desired position with relation to the grate. The mantel piece located in front of the open grate is provided at its inner face with a recess, and it has vertical guiding flanges for slidably connecting the blower with the mantel piece.

Delia Goodale, Fort Collins, Colo. Sanitary Drinking Cup.—The object of the invention is to provide an individual or sanitary drinking cup adapted to be folded flat so as to be readily carried in the pocket or placed flat in a vending apparatus, and capable of being constructed from a single blank of material and made absolutely seamless and water tight. The drinking cup consists of a substantially circular body having a plurality of creased lines radiating from the center and forming a series of foldable parts, which are folded together in succession one upon the other and secured together to form a substantially conical receptacle, the walls of which are made up of a plurality of plies or thicknesses.

Albert Helt and Benjamin Helt, Dumont, Iowa. Shovel Blade.—This patent relates to a shovel blade designed principally for use on corn plows, and capable of being arranged to throw the soil either toward or from the corn, or for cutting weeds at a uniform depth between the rows, and adapted to be adjusted to run either deep or shallow. The device will not cut the roots of corn, and may be applied to plows having standards of different sizes. The device includes a shank constructed of sheet metal and consisting of a substantially flat lower portion, an intermediate upwardly tapered transverse portion, and a transversely curved top attaching portion having flat lateral extensions, a blade fitted against the lower flat portion of the standard and pivoted to the same, and a rear clamping plate consisting of a curved intermediate portion, and flat laterally projecting portions arranged opposite those of the shank and secured to the same.

Axel R. Holmen, Columbus, Ohio. Two patents.—The first patent relates to an apparatus designed for softening water, and adapted to enable the chemicals employed to be arranged in a single solution, and delivered by a single feeding device into a chamber where hard or raw water is subjected to the action of the chemicals. The apparatus comprises a mixing chamber having agitating means, a motor connected with and operated by the water supply, a solution tank, means operated by the motor for feeding the solution from the tank to the mixing chamber, and a settling tank connected with the mixing chamber.

The second patent covers a meter motor adapted to use fluid under pressure as a motive power and also to enable the fluid passing through the machine to be measured. The machine comprises in its construction a cylinder, a piston operating in the cylinder, a valve chest provided at one side with an inlet opening and at the opposite side with an exhaust opening and including a longitudinal partition provided with intermediate and terminal longitudinal portions and transverse connecting portions, and transverse partitions connecting the intermediate portions of the longitudinal partition with the wall of the valve chest at opposite sides of the outlet or exhaust opening and forming a contrally arranged exhaust chamber at one side of the valve chest. The longitudinal partition forms a continuous inlet chamber at opposite sides of the valve chest, and the transverse terminal portions form intermediate chambers or passages. Branch passages connect the intermediate chambers or passages with the ends of the cylinder, and the partitions have aligned inlet and exhaust openings. A reciprocating

valve rod extends through the openings and is equipped with exhaust and admission valves.

John M. Lindsey, Call, Texas. Horse Detacher.—It is the aim of the present invention to provide a horse detacher adapted to permit the horse or horses harnessed to a vehicle to be readily detached therefrom by the driver while seated in the vehicle, whereby injury to the latter or the occupants thereof is prevented should a horse attempt to run away, or become frightened or balky in front of a rapidly moving train, or become unmanageable from any other cause. The horse detacher comprises a bell crank lever pivotally mounted on a suitable support in rear of the doubletree or singletree and connected with the pivoted bolt thereof. The lever is arranged to hold the pivoted bolt in operative position and is adapted to withdraw the same and free the doubletree or singletree.

Frank McGilvray, Carlock, Illinois. Gate.—This invention has for its object to provide for swinging gates an operating mechanism adapted to enable a gate to be opened and closed at a distance from either side of it without dismounting from a horse or leaving a vehicle, and capable of holding the gate in its open position and of positively locking the same in its closed position to prevent cattle from interfering with the operating mechanism, or opening the gate. The operating mechanism comprises a pair of approximately horizontal actuating members pivoted together at their inner ends, one of the members being connected to the gate and the other to a fixed support, operating means connected with the pivoted member for swinging the same upwardly to actuate the gate, and a fixed guard arranged adjacent to the pivoted members to prevent the same from being swung upwardly by stock.

William L. Manning, Wilson, N. C. Spring Gear for Vehicles.—This patent covers a construction designed for use on buggies and other vehicles, and adapted to add to the life and strength of the side spring gear, as well as to the appearance of the finished gear. Another object of the invention is to provide a side spring gear adapted in the event of the breakage of the king bolt to prevent the front axle from becoming disengaged from the running gear and dropping the body of the vehicle. The spring gear includes a D-wheel secured to the front bolster and extending in advance of the same, a central longitudinal spring extending in advance of the front axle and having its front end connected with the D-wheel, and a bracket located in advance of the axle and connecting the extended portion of the spring with the bolster.

Michael E. McCabe, Onaga, Kans. Display Rack.—The object of this invention is to provide a rack, designed principally for displaying harness, and adapted for use in store windows and also upon the floors of stores and other places, and capable of affording a rigid support, and also of being swung back out of the way when not desired. The display rack comprises a stand having a vertical pivot, a frame mounted at one end on the pivot of the stand and provided with means for supporting the article to be displayed, and a stationary leg detachably connected with and supporting the other end of the frame and adapted to be disconnected therefrom to permit the frame to swing horizontally on the pivot of the stand.



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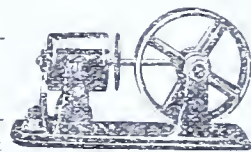
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### PATENT OFFICE INVESTIGATION.

#### REPORT OF THE COMMISSION ON ECONOMY AND EFFICIENCY.

##### NUMEROUS RECOMMENDATIONS MADE.

The Commission on Economy and Efficiency appointed by the President to examine the Patent Office and report as to what changes were needed in that bureau, has concluded its investigation and submitted its recommendations to Congress. So far as known, no oral hearings were given by the commission and no witnesses examined outside of the Patent Office. The work of the commission was principally directed to sending out a list of questions to attorneys practicing before the Patent Office and prominent inventors, the questions taking a wide scope and embodying twenty-four different subjects. Based upon the replies received as well as the investigation made by the commission of the Patent Office, the commission has submitted a report, which will serve to crystallize the conflicting opinions which have been presented in bills now pending before Congress.

##### NEW BUILDING RECOMMENDED.

The most important recommendation is a proposed new building. This has been recommended so often, however, that it is a trite subject. No one questions the necessity for new quarters for the Patent Office. The difficulty has always been to get Congress to act. Many years ago, Senator Daniel of Virginia, now deceased, introduced a bill in the Senate to purchase the plot of ground directly north of the Congressional Library, on which it was planned to erect a building for the United States Patent Office. The proposed site was considered singularly appropriate because of the fact that the Library of Congress has under its control the administration of copyrights; and the Commissioner of Pat-

ents passes upon the grant of patents and the registration of trademarks, prints and labels, the several forms of protection being somewhat analogous, and both patents and copyrights being embraced by the same provision of the Constitution. While this selection would make many office buildings in the vicinity of the present Patent Office of little value to their owners, it is conceded by all unprejudiced persons that the site is an ideal one. Nothing, however, was ever done with the bill, and it died the usual death of hundreds of bills introduced in both branches of Congress.

It is urged that the proposed new building should be especially designed, equipped and furnished and be for the exclusive use of the Patent Office. The space in the present building is wholly inadequate for the efficient and economical transaction of business. The rooms are crowded, poorly ventilated and lighted. Some of the rooms which were made by partitioning off the hall formerly used to exhibit models, have ceilings only eight feet high. With a large number of employes in a room of this kind, the absence of adequate ventilation causes a serious loss in efficiency and injures the health of the employes.

The danger of fire in the present building is also commented upon by the commission, as records of titles to patents and other papers of value are exposed to loss by fire, being stored in wooden boxes. The halls and corridors of the present building are used for files. The Examiners are so crowded that careful work cannot be expected.

To put the present building in some sort of condition until the erection of a new building, an appropriation is recommended by the commission for the repair of the rooms occupied by the Patent Office, for the installation of suitable lighting and ventilating facilities, and for the purchase of new furniture and equipment. It is suggested that the urgent need for more room be met temporarily by moving some divisions of the Interior Department from the present building and giving the space to the Patent Office.

##### INCREASE OF FORCE AND SALARIES.

The commission recommended that the number of employes in the Office be increased from nine hundred and thirty-nine to nine hundred and seventy-five, with an increase in the pay roll of \$236,550. The principal salary increases recommended are the following:

Commissioner from \$5000 to \$7500. Assistant Commissioner from \$4500 to \$5000. Examiners-in-Chief from \$3500 to \$4500. Examiner of Classification from \$3600 to \$4000. Examiner of Interferences from \$2700 to \$3000. Principal Examiners from \$2700 to \$3600. First Assistant Examiners from \$2400 to \$2700. Second Assistant Examiners from \$2100 to \$2250.

The increase in force covers two additional Examiners-in-Chief at \$4500, to make the Board consist of five instead of three members: one additional Examiner of Interferences at \$3600; one Assistant to Chief of Division of

Trademarks at \$2700; one Assistant to Chief of Classification Division at \$3000; twenty-seven additional First Assistant Examiners at \$2700; seventeen additional Second Assistant Examiners at \$2250; six additional Third Assistant Examiners at \$1800, and the reduction of the number of Fourth Assistant Examiners from one hundred and ten to eighty-three.

##### ONE APPEAL ABOLISHED.

The commission has recommended that instead of appealing first to the Board of Examiners-in-Chief from the decisions of the Primary Examiner, followed by a second appeal to the Commissioner of Patents in person, the Board be increased from three to five members, and that *all* appeals within the Office be taken to this Board. The question of abolishing one appeal in the Patent Office has been frequently discussed in the columns of the AGE. The difficulty has been in arriving at a correct settlement of the matter. Every one has been opposed to the present practice of requiring two appeals, one from the Principal Examiners of the 43 divisions to the Board of Examiners-in-Chief, composed at present of three members, and again from the Board of Examiners-in-Chief to the Commissioner. The consensus of opinion among those best informed on the subject is that a single appellate tribunal of five members, three to constitute a quorum, and composed of the present Board with two additional members, would be a proper solution of the question, and it appears that the commission has so recommended. The work before the Board of Examiners-in-Chief is increasing in technicality and difficulty each year, so much so that it has been found impossible for the Board to keep up with its work. At present one cannot get a hearing before the Board of Examiners-in-Chief for five months, and it usually takes a month or two after the hearing before a decision is rendered. With an addition of two members, the Board could sit continuously throughout the entire year, including the summer, and thus avoid the objection of taking a recess during the usual vacation period, causing the work to lag further behind. If no other recommendation of the commission is acted upon, this one should surely be given immediate consideration.

##### MODIFICATION OF FEES.

The present fee for filing an application for patent is \$15, and when the application is allowed the final government fee of \$20 is due. The commission found that in a large number of applications, the inventors failed to take out their patents after they were allowed, with the result that the government lost the final government fee of \$20. The work of engrossing, printing and issuing the patent costs considerably less than \$20, whereas the work of examining the application and passing it to issue frequently costs considerably more than \$15. The commission thought that the fee for filing an application should be increased from \$15 to \$20, and the final government fee be made

\$15. This change in the fees, it is estimated, will increase the annual revenues of the Patent Office \$200,000 and make up to a large extent the increase in salaries recommended by the commission.

##### TERM OF THE PATENT.

An important recommendation is that the life of a patent be so limited as to expire nineteen years from the date of filing of the application, excluding the time, not exceeding two years, during which an application may be involved in interference. The commission reports that under the present law, which allows an applicant one year's time in which to answer any action of the Patent Office, an application may be kept pending in the Patent Office ten years or more. It is believed that the proper remedy is to make the term of the patent commence from the date of filing the application, as is done in many foreign countries, and thus prevent an application being held up in the Patent Office.

##### PATENT OFFICE GAZETTE.

An increase in the subscription price of the Official Gazette from \$5 to \$10 is recommended by the commission. At present the Gazette publishes the first five claims of a patent in connection with one of the figures of the drawings. It is recommended that instead of pursuing this policy, a brief or summary of the patented invention be published so as to give a better idea of what is covered by the patent. It is further recommended that all the work of producing the publications of the Patent Office be turned over to the Government Printing Office.

##### ADMINISTRATION OF THE OFFICE.

By the recommendation of the commission, the appeal from the Board of Examiners-in-Chief to the Commissioner of Patents is abolished, and the Commissioner of Patents is relieved from the duty of considering cases on appeal, in order that he may give his entire attention to the administrative work of the Office. To assist him in this, it is proposed to give him one assistant commissioner of patents and seven supervising examiners.

It is pointed out that adequate control of the methods and procedure of the forty-three examining divisions in the allowance and rejection of applications for patents is necessary to secure efficient work. The commission bases the recommendation that the Commissioner of Patents be relieved from judicial work upon the fact that the number of invalid patents issued is due largely to a failure on the part of the Commissioner to supervise and control the work of the examining force, leaving the decision on applications to the forty-three Principal Examiners. Their decisions, if favorable to the issue of patents, are not reviewed. If unfavorable, the applicant can appeal. The commission reached the conclusion that the defects in the organization of the Patent Office resulted from the lack of uniformity in the work of the examining divisions. These defects are due to the organiz-



ation remaining the same as it was fifty years ago, when the business of the Office and the force of Examiners were very small as compared with the conditions at the present time. With a corps of Examiners numbering nearly four hundred, it is impossible for the Commissioner of Patents, with his present duties of deciding cases on appeal, to give to the administrative work of the Office the attention that is essential.

There will be many who will oppose this recommendation of the commission. It is not clearly seen how a Commissioner of Patents with seven assistant examiners can supervise the work transacted in forty-three different divisions of the Patent Office. It looks to us as though the Commissioner and his seven assistants will keep the Examiners in hot water, so to speak, all the time.

The commission made no recommendation to restore the caveat law, though there were some who felt that it was a mistake to repeal this provision of the patent law.

No recommendation to establish a patent bar was made by the commission. If there is any matter before the Patent Office that is deserving of attention, it is the establishing of a patent bar which will tend to eliminate a certain class of attorneys and put the standard of patent soliciting on a higher plane. It will do more than a Commissioner and seven assistant examiners to stop the practice of granting worthless patents, because it will suppress that class of attorneys through whose solicitations worthless patents are usually granted.

That the agitation in the present Congress will result in some legislation there is no doubt. Let us hope that the legislation will be wise, generous and productive of good results. Inventors can aid in bringing about that kind of legislation by informing themselves on the subject. A copy of the report of this commission can be obtained, free of charge, by any one writing to his Member of Congress. Copies of the patent bills now pending before the committee on patents in Congress may also be secured gratis through the same source.

#### Radium Changes Colors of Gems.

The latest experiments with radium shows that it has the property of changing the colors of precious stones. The change is effected merely by continued exposure to radium salts, and the gems which give the best results are sapphires. A young German chemist purchased several varieties of sapphires and placed them in a box with a small quantity of radium bromide. After about a month's exposure the white stones had turned yellow, the blue one green, the violet ones sapphire blue, and a wine colored one had assumed a beautiful ruby tint. The chemist took the stones back to the jeweler from whom he had bought them for about forty cents a carat, and the dealer, suspecting nothing even after a close examination, offered \$9 a carat for all the stones, with the exception of the ruby colored one, for which he offered an even higher price.

#### THE NEW EQUITY RULES.

The United States Supreme Court on November 4, 1912, promulgated the Rules of Practice for the Courts of Equity of the United States, which take the place of the old Equity Rules. While it is too early to define the full significance of these rules, it seems to be conceded by every one that the abrogation of dilatory pleas and technical forms of pleading will tend to stimulate the progress of the litigation and reduce the expense. The radical nature of the changes in the rules is made clear by quoting rule 18:

"Unless otherwise prescribed by statute or these rules the technical forms of pleadings in equity are abolished."

In connection with this the fact that under rule 29 demurrers and pleas are abolished, will tend to bring the parties to issue much earlier than heretofore.

One change in the rules which will not please some practitioners is that provision of rule 46, reading as follows:

"In all trials in equity the testimony of witnesses shall be taken orally in open court, except as otherwise provided by statute or these rules. The court shall pass upon the admissibility of all evidence offered as in actions at law."

Rule 48, which deals with the taking of testimony of expert witnesses in patent and trademark cases, is as follows:—

"In a case involving the validity or scope of a patent or trademark, the district court may, upon petition, order that the testimony in chief of expert witnesses, whose testimony is directed to matters of opinion, be set forth in affidavits and filed as follows: Those of the plaintiff within forty days after the cause is at issue; those of the defendant within twenty day after plaintiff's time has expired; and rebutting affidavits within fifteen days after the expiration of the time for filing original affidavits. Should the opposite party desire the production of any affiant for cross examination, the court or judge shall, on motion, direct that said cross examination and any re-examination take place before the court upon the trial; and unless the affiant is produced and submits to cross examination in compliance with such direction, his affidavit shall not be used as evidence in the cause."

The provision will greatly simplify the proceedings in patent and trademark cases, and is bound to reduce the expense and bring the cases to an early hearing. To compel a patent expert to be cross examined in open court on the subject of his deposition, will accomplish wonders in shortening the procedure in patent cases. We have frequently quoted the remarks of different Justices of the federal courts adversely commenting upon the voluminous records in patent cases. The examination of an expert has frequently in the past been

carried on for weeks at a time. No court would stand for anything like that, and it is a safe prediction that the enforcement of these rules will put a stop to the dilatory practices of certain practitioners before the courts, whose work has made patent litigation a by-word.

#### A Springless Lock.

The disadvantages of the average cheap lock are well known. An efficient substitute has been introduced in the form of a springless lock, the main object of which is to press the tumblers in one direction to be in contact with the key, while being used, and return to rest when the key is removed. In this new lock the detainers are not tumblers or levers but U-shaped pieces with arms at right angles to the sides of the U. These pieces slide in a channel fixed to the bolt, and when locked, one arm is in front of the end of the rim, to prevent inward movement of the bolt. The key enters the U, and as it is turned, the steps move the U-pieces the required distances from the center. The step opposite to each of those causing action, checks overmovement liable from the momentum. When the key is at right angles to the sides of the U, all the steps of either side of the key are in contact with the sides of the U, and all the ends of the U-pieces are clear of the ends of the rim, so that they form no obstacle to the inward movement of the bolt. Then if the key be turned farther, the bolt begins to move by the action of the carrier, which is taken round by the key. Before the movement of the key is complete, the scatterer begins to act. It is part of the carrier, and is so shaped as to move the U-pieces in both directions into positions very different from those at which the lock will open. This lock is cheap but durable, the character of the mechanism guarding against a breakdown at a critical moment.

#### Shoes.

Habit makes the marvelous appear commonplace. No one would think of regarding the shoes that everybody wears as in any degree marvelous, and yet the machinery employed, the complicated processes of making, and the remote sources of the origin of the materials involved, make them worth more attention than is commonly bestowed on them. Few of the millions who daily don them know how many parts of the world, how many natural kingdoms, have contributed to the manufacture of this ordinary article of attire.

Take a man's high grade shoe, with patent leather vamp and dull leather top. The vamp is made of horse hide brought from Russia, and tanned in New Jersey with bichromate of potash. The top is probably made of the skin of goats that roamed the plains of South America, imported into this country and tanned in Philadelphia with gambier which, in turn, was pro-

duced in the East Indies. Wool off from Michigan makes it soft and pliable. The brilliance of the patent leather is obtained by polishing with a composition containing lampblack and turpentine, the latter coming from North Carolina, also linseed oil from Ohio, "damer" from New Zealand, "couchone" and asphalt from South America, wood naphtha from Michigan, benzoin from Sumatra, benzine from Pennsylvania, amber from the shores of the Baltic Sea, sandarac from Africa, mastic from the isles of Greece, "flemi" from Asia, and lac from Cuba.

The outer sole was furnished by the back of a Texas steer: bark from Tennessee tans it in Kentucky. The inner sole is made of the hide of California cattle. The lifts for the heel are from the skin of a buffalo that inhabits East India. The dextrine that holds them together came from the corn fields of Illinois. The sole of heavy oak is stitched to the welt, the welt to the insole and upper, with linen thread spun in Scotland. The thread is strengthened with wax made from rosin and tar extracted from the pines of North Carolina. The cement which holds the thread channel around the edge of the sole owes its origin to Brazilian rubber tree sap. The leather for the box toe was hardened by shellac found in its crude state in Siam.

The kangaroo of Australia furnished the hide for the tongue of the shoe. The cork insole came from the forests of Portugal. The bright polish of the sole is due to a coat of bayberry tallow made from the fruit of the Indian bay-tree, mixed with native honey bees' wax and turpentine.

The twill for the inside lining comes from cotton grown probably in Texas, woven in Massachusetts, stiffened in Philadelphia with paste made from Kansas wheat flour. Thread spun from Sea Island cotton supplies the top stitching. The felt heel pads are made from the wool of Ohio sheep, felted in a New York town, distributed in Boston, glued to place with gum arabic from Egypt.

The shoe lace is made from native cotton thread colored with log wood from Ucatan, aniline black and other ingredients. Silk from China supplies the tag on which is embroidered the name of the maker. Steel, specially made for the purpose in Pittsburg, is used for the nails. The lacing hooks and eyelets were made in Connecticut; a combination of zinc and copper from Lake Superior providing the foundation, and agatine, a substance composed of eight separate constituents gathered in three continents, giving them their darkened gleam. With the aid of fifteen machines and sixty-three people, the leather can be transformed into a pair of shoes in thirty-four minutes. Finally, the box in which the finished pair of shoes is packed is made of American wheat straw and the cottonwoods of the Mississippi delta.

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Door check.....E. W. Clark  
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..... P. Wuest, Jr.  
Sewing machine playing device..... R. H. Boardman  
Sewing machine piling box..... H. L. Craig  
Sewing machine pin spotting mechanism..... W. M. Farrow, Jr.  
Sewing machine pins, paper clips, &c. Device for holding  
and delivering small articles, such as.....  
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Sewing machine pipe conduit coupling..... F. W. Erickson  
Sewing machine pipe protector..... C. Elkin  
Sewing machine pipes. Ascertaining the location of leaks in  
underground fluid pressure..... G. V. Payne  
Sewing machine pipes. Bending..... M. Schitzkowsky  
Sewing machine pistol. Repeating cap..... W. F. Gehrig  
Sewing machine pistols with fixed barrels. Firing mechan-  
ism for recoil-loading..... P. Mauser  
Sewing machine planter attachment. Potato..... S. W. Bickel  
Sewing machine planter. Check row seed..... L. H. Beltzer  
Sewing machine planter. Corn..... W. W. Cayenne  
Sewing machine planter. Peanut..... W. L. Harris  
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Sewing machine plastic articles, relieves, hollow bodies, and  
the like, of pulp Apparatus for manufac-  
turing..... K. W. Mansersberger  
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Sewing machine flow..... S. Peterson  
Sewing machine plows. Stalk cutter attachment for sulky..  
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Sewing machine poke..... J. Tanscher  
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Sewing machine powder box..... M. H. Avram  
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Sewing machine power transmission mechanism..... C. D. McClintock  
Sewing machine power transmission system..... C. Kramer  
Sewing machine preserving food products..... E. D. Schmitt  
Sewing machine presses. Safety guard for foot or screw..  
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Sewing machine pressure gage. Pneumatic..... O. Olsen  
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Sewing machine printing press sheet feeding mechanism.....  
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Sewing machine pulverizer..... W. K. Lizzett et al.  
Sewing machine pulverizer. Clod..... L. Cunningham  
Sewing machine pulverizing machine. Soil..... A. J. Tower  
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Sewing machine pump..... R. Conrad  
Sewing machine pump. Rotary..... G. F. Oherge  
Sewing machine puzzle..... F. C. Wallace  
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Sewing machine rail fastener. Guard..... W. S. Newhall  
Sewing machine rail. Guard..... J. W. Kelley  
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Sewing machine roundabout..... P. Steinert  
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Vehicle spring attachment.....G. Graybill  
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Concrete surfaces, Structure for forming.....J. A. Sheffey  
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Drinking bowl for animals.....R. Markley  
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Emery wheels, Tool for dressing.....J. Z. Frankofsky  
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Engine.....E. Fisher, Jr.  
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Gas light, Intermittent.....T. Jackson  
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Rail joint.....J. G. McMichael  
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Recording key.....C. F. Kettering  
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Scaffold, Portable.....T. V. L. Boillot  
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Scale, Pendulum computing.....H. S. Hallwood  
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Semaphore signal.....J. Knyla  
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Snow shovel.....F. E. Kohler  
Soap machines, Automatic feeding device for.....L. J. Doolittle  
Solid bodies, Appliance for raising.....F. Beduwe  
Sound reproducing apparatus.....A. N. Pierman  
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Spot setting machine.....D. C. Sassemann  
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Stovepipe attachment.....J. H. Allen  
Strainer, Fuel oil.....K. M. Dahl  
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Concrete wall construction, Mold form for.....A. P. Cray  
Conduit joint.....G. B. Von Boden  
Container testing machine.....M. Karp  
Controller.....H. D. James  
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Coring, Apple.....W. S. Shuler  
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Corn grader.....D. F. Luse  
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Cotton stalk puller.....J. B. Marshel  
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Counting machine, Pill and tablet.....C. Goulding  
Counting mechanism.....J. Froehlich  
Coupon cutting machine, Electrically operated.....G. A. Hobart  
Crank pin turning device.....E. W. Louder  
Crucible furnace.....W. S. Rockwell  
Cuff press.....W. Bartholomew  
Cultivator attachment.....W. V. and M. S. Crouch  
Cultivator, Disk.....L. E. Waterman  
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Dish washing machine.....C. F. Frothingham  
Dish washing machine.....H. T. Goss  
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Drawer roller suspension.....C. U. Carpenter  
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Electric device, Vapor.....F. A. Kroner  
Electric furnace.....J. A. Seede  
Electric heating unit.....L. F. Parkhurst  
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Electric machine, Dynamo.....J. E. Noeggerath  
Electric machine rotor.....R. Goldschmidt  
Electric machine, Static.....T. H. Patee  
Electric meter.....M. E. Turner  
Electric regulation.....J. L. Creveling  
Electric switch.....J. C. Dunfee  
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Electromagnet controlling device.....H. K. Kouyoumjian  
Electromagnetic wave receiver.....R. A. Fessenden  
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Envelope machine.....J. Froehlich  
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Faucet.....R. J. Long  
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Fence post.....R. B. F. Barton  
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Fertilizer and making same.....S. B. Newberry et al.  
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E. Tatatorek  
Fish hook releaser.....S. Wetmore  
Flame proof switch.....W. R. Yonmans  
Flash light apparatus for cameras.....  
A. E. Wallace  
Flash light, Electric.....J. F. Wagner  
Fliers, Making.....C. T. Burlin  
Floating bodies against adhering of mussels,  
Protecting.....E. Liebreich  
Floor and ceiling plate.....F. N. and A. R. Wells  
Fluid transmission.....J. Lehne  
Fly screen and shade, Adjustable.....A. P. Smith  
Flying machine.....W. E. Pearson  
Foot rest.....E. M. Bishop  
Fruit jar.....F. Breille  
Furnace cooling device, Blast.....F. D. Carney  
Furniture, School.....L. A. Churgay  
Fuse for projectiles, mines, torpedoes, &c.,  
Pressure.....E. Sokolowski  
Fuse, Inclosed.....F. W. Harris  
Fuse plug.....D. E. Brown  
Gage.....W. F. Shore  
Garment stays, Machine for making wire.....  
M. M. Beeman et al.  
Gas and air mixing meter.....G. R. Cottrell  
Gas and smoke burning furnace or stove.....  
A. Williams  
Gas burner.....W. N. Best, Sr.  
Gas cleaning, cooling, and washing appar-  
atus.....H. E. Theisen  
Gas generator.....R. C. Bradley  
Gas igniting apparatus.....H. P. Rostin  
Gas producer.....C. A. Knezel  
Gate fastener, Wire.....W. T. Bird  
Gear.....H. L. Hudson  
Gear, Producing finished tempered.....C. W. Parker  
Gearing.....C. J. Marth  
Gearing.....T. Collins et al.  
Gearing, Transmission.....C. W. Parker  
Germicide and insecticide.....G. Fritzsche  
Glass drawing apparatus.....T. Oakes et al.  
Glassware, Pressed or molded ribbed.....  
O. A. Mygatt  
Globe.....M. Manson  
Grafting tool.....C. A. Priest  
Grain steeping apparatus.....O. Winde  
Granular materials, Apparatus for treating.....  
A. A. Lanauz  
Grass scalding apparatus.....W. C. Key  
Graver.....J. J. Wilson  
Grease gun.....W. U. Watson  
Grinding machine, Ball.....J. G. Irwin  
Grinding or abrading machine.....H. W. Newman  
Grinding wheel guard.....W. Stone  
Hame hook.....P. M. Hardy  
Hammer, Fluid pressure actuated.....N. W. Iseli  
Hammer, Trip.....E. M. Patten  
Hand, Artificial.....D. W. Porrance  
Hand bag.....I. J. Levy  
Harrow.....D. C. Smith  
Harrow, Roller.....J. E. Carlson et al.  
Harvester, Cotton.....J. B. Marshall  
Harvester, Potato.....J. P. Brennan  
Hat pin, Extensible.....W. R. Newman  
Hay loader.....W. Allen  
Header.....J. W. Hoover  
Heating device and constructing the same,  
Electric.....W. S. Hadaway, Jr.  
Heel plate, Detachable shoe.....A. Yonhas  
Heel, Removable.....L. Kalina  
Hinge.....J. Loughner  
Hinge, Stay.....P. J. Steiger  
Hoist controlling system, Electric.....F. I. Smith  
Hook feeding mechanism.....W. L. Curtis  
Horse blanket.....W. M. Lyman  
Horseshoe, Cushioned.....G. E. McKinnon  
Hose coupling.....C. E. Jenkins  
Hot air furnace.....M. Dickson  
Humidostat regulator.....W. M. Clark  
Hydraulic motor.....J. E. Fee  
Hydrocarbon burner.....G. Pantbriand  
Hydrocarbon engine.....A. Butsch  
Hydrocarbon generator.....J. Stubbers  
Hydrocarbon vapor generator control.....  
J. Stubbers  
Ice edger.....O. W. Robins  
Illuminating appliance.....W. A. Dorey  
Incubator heating system.....C. E. Adair  
Index, record, and filing card.....M. Hermann  
Indicating and protecting device.....D. R. Knapp  
Indigo compounds and making such bodies,  
Halogenized.....A. Holt  
Induction furnace.....C. P. Steinmetz  
Insect and animal exterminator.....J. J. Hobbs  
Insulating cleat.....R. D. Hilty  
Insulator.....J. N. Foutz  
Intaglio plate cleaning device.....H. A. W. Wood  
Internal combustion engine.....F. A. Thurston  
Internal combustion engine.....W. I. Twombly  
Internal combustion engine.....W. H. Richman  
Internal combustion engine.....J. M. Sailer  
Internal combustion engine, Reversible.....  
O. H. Ensign  
Ironing board cabinet.....W. Schongold  
Irrigation, Tree and plant.....H. F. Thompson  
Jaquard.....J. A. Groebli  
Jar opener, Milk.....L. B. Ingham  
Key carrying device.....F. A. Tooe  
Kilns, &c., Burner for rotary.....P. T. Lindhard  
Kinematographic films, Protecting.....I. Kitsee  
Lamp.....E. A. Wiltermood  
Lamp, Automobile.....F. C. Parsche  
Lamp chimneys, Producing.....W. J. Wambaugh  
Lamp, Gas.....J. and G. Keith  
Lamp post.....L. C. Bader  
Lamp safety chamber.....J. V. Down  
Lamp, Signal.....A. H. Handlan, Jr.  
Lamp socket locking device.....F. Barr  
Lamps, Apparatus for manufacturing incan-  
descent.....A. S. Knight  
Lamps, Transparent hood for electric.....  
G. A. Seessle  
Lantern holder.....W. W. Eastman  
Lasting machine.....P. A. M. Kiener  
Laundry roll, Electrically heated.....W. S. Hadaway, Jr.  
Leather staking machine.....A. C. Layman  
Life preserver.....A. D. Crull et al.  
Light concentrator and projector.....C. G. Myers  
Light, Production of (2 pats.).....S. O. Hoffman  
Lighting, Vacuum tube.....General Electric Company  
Lint flue.....J. E. Cbeesman  
Lint treating apparatus (2 pats.).....J. E. Cheesman  
Lock.....J. Jnnkunc  
Lock.....N. Waing  
Lock.....C. E. Brede  
Locking device, Automatic.....J. L. Morisons  
Locking mechanism, Coin controlled.....F. J. Rowse  
Locomotive cab drop seat.....J. Heitsch  
Locomotive oil burning apparatus.....A. J. Jones  
Locomotives and other power propelled ve-  
hicles utilizing the resistance of the air,  
Apparatus on.....J. Jaensch  
Loom, Weft replenishing.....B. Elmendorf et al.  
Looms, Shipper locking means for.....C. W. Megginson  
Lubricant retainer.....H. C. Pease  
Lubricating device, Chain.....J. M. Barrett  
Machines, Noiseless case for noisy.....J. F. O'Bryne  
Mail bag handling apparatus.....O. C. Lntner  
Mail receptacle.....G. B. McAllister  
Marcel waver.....J. W. Buickerood  
Marking or canceling machine.....W. L. Bowlus  
Match.....J. R. Nolan  
Match books, Machine for making.....M. Paridon et al.  
Match box.....F. H. Farrar, Sr.  
Match safe.....F. Kotraba  
Metal objects, Producing coated.....J. F. Monnot  
Metallic frame.....E. G. Budd  
Milk condenser.....S. P. Hay  
Milking machine pulsator.....A. L. Berthelsen  
Milking, Mechanically.....J. L. Hulbert  
Mine, Floating.....A. Lernet  
Miter box.....A. F. Schade  
Moistening and sealing machine, Envelop.....  
L. A. Wakefield  
Molds, Mechanism for drawing patterns  
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Motor control, Brake actuated.....H. P. Dodge  
Motor control system (2 pats.).....C. Kramer  
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Motor supporting means, Electric.....H. M. Scheibe  
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Musical instrument, Automatic.....J. Wauters  
Musical instrument, Automatic.....F. L. McCormick et al.  
Musical instruments, Perforated note sheet  
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Mustache guard.....J. H. McConnell  
Nebulizer.....J. J. Holland et al.  
Needle making machine.....P. Bohin  
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Nitrogen compounds, including nitrids and  
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Nut lock.....J. Mohan  
Nut lock.....L. J. Campbell  
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Observation device.....F. W. Walquist  
Oil burner.....H. Ludwick  
Oil burner.....E. Lanfredi  
Oils soluble in water, Manufacturing.....L. Hirschberg  
Oiler.....R. H. Evans  
Ointment machine.....W. O. Kaiser  
Outlet box hanger.....L. G. Bowen  
Packing.....J. Kerchner et al.  
Paper drinking cup.....R. R. Richardson  
Paper pulp, &c., sorter.....J. M. L. Spangenberg  
Paper vessels, Machine for making.....L. Norman  
Peanut cleaning and stemming machine.....T. J. Whitmore  
Pen, Combination fountain.....F. I. Tolles  
Pen, Fountain (2 pats.).....J. W. Laughlin  
Perforating machine.....C. L. Lilleberg  
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Piano music roll holder, Automatic.....C. F. Webb et al.  
Picture film and other material, Machine  
for winding moving.....H. W. Griggs  
Piling, Sheet.....G. W. McFarlane  
Piling, Sheet metal.....T. Larssen  
Pillow case, Day.....C. L. Hosken  
Pin.....H. L. Steiner  
Pincapples, Means for packing fresh.....H. B. Kopf  
Pipe cutting machine.....L. R. Blackmore  
Piping system, Gland.....J. E. Metten  
Piston rings, Tool for inserting.....L. J. Brown  
Pitting machine, Cling peach.....E. Nyswonger  
Plane, Bench.....H. M. Wood  
Planter.....H. F. Spaulding  
Pliers for clamping clips.....J. G. Coutant  
Plow attachment.....J. C. Bergh  
Plow, Disk.....J. H. Davis et al.  
Plows, Draft device for wheeled gang.....N. Weiler  
Plumbing fixtures, Floor connection for  
sanitary.....B. Oakes  
Pneumatic cleansing apparatus.....A. E. Moorhead  
Pneumatic cleansing implement for remov-  
ing dust.....A. E. Moorhead  
Poke, Cow.....N. P. Swann  
Pole cap for vehicles.....A. Moren  
Powder applying device, Toilet.....C. E. Heil  
Presses, Safety guard for stamping and  
other.....J. M. Jones  
Pressure gage.....J. Okill  
Pressure regulator.....E. Zahm  
Pressure regulator.....H. E. Shawver  
Printed sheets, Drying machine for.....I. D. Hurlbut  
Printing machine, Proof.....R. O. Vandercook  
Printing plates with silver salt gelatin  
emulsion, Obtaining metal.....P. Schumacher  
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mechanism therefor.....H. A. W. Wood  
Printing press cutting mechanism.....P. Martin  
Printing upon warps, Machine for.....O. Hallensleben  
Projectile.....R. A. Tute  
Propeller.....C. E. J. de Vallet  
Pruning implement.....J. C. Kearns  
Pulley, Belt.....F. E. Meigs  
Pump, Steam.....L. K. Stevens  
Punching machine, Time controlled bag.....A. L. Nevels  
Quick action jack.....L. Willour  
Radiators, Guard deflector for.....M. B. Armstrong  
Rail chair and fastener.....H. H. Wiggins  
Rail construction.....C. W. Gamwell  
Rail fastener.....P. E. Yeager  
Rail fastening means.....A. H. Moffet  
Rail joint.....H. B. Maddox  
Rail joints, Bond spring for.....W. M. Rnsh  
Rail, Rack.....N. D. Levin  
Rail spike.....G. H. Nurnberger  
Railroad tie and fastening.....W. H. Hornsby  
Raisin separating machine.....G. L. Langer  
Receptacle.....F. A. Kane  
Receptacle cover.....H. A. Gibbs  
Recoil mechanism.....E. Gray  
Records, Magazine for disk.....T. D. Foster  
Rectal dynamo.....J. B. Wagoner  
Refractory material.....F. J. Tone  
Refrigerators and closets, Sanitary lining  
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Rendering vessel.....S. Toth et al.  
Reservoir and channel cleaner, silt conser-  
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Reversing mechanism.....W. Monk  
Rim (2 pats.).....A. D. Reid  
Ringing and docking instrument.....G. W. Fletcher  
Ringing key, Selective.....C. H. North  
Road making and binding material therefor.....E. A. Paterson  
Road sweeping machine.....J. T. Whitmore  
Rope clamp.....W. Campbell  
Rotary engine.....J. Nielsen  
Rotary engine.....J. G. Wilson  
Rotary explosive motor.....M. J. Helmes  
Rotary liquid motor, Duplex reversible.....W. E. Pearson  
Rotary motor.....W. E. Pearson  
Sad irons, Safety device for electric heater.....C. E. Skinner  
Sap spout.....C. C. Stelle  
Sash, Metal window.....W. and W. D. Bayley  
Sash mounting.....C. K. Olberg  
Saw.....C. C. Wood  
Scouring machine heel rest.....F. L. Ellison  
Scraper, Road.....E. R. Kerr  
Scrubbing appliance, Pneumatic.....A. E. Moorhead  
Scythe hand grip.....M. Miley  
Seeding machine.....L. E. Waterman  
Separator.....F. O. Stromborg  
Sewer pipe construction.....W. Lucas  
Sewing machine.....E. Drake  
Sewing machine adjustable presser foot.....L. D. Green  
Sewing machine stop mechanism.....J. W. Roberts et al.  
Sewing upholstered or tufted pads or cush-  
ions, Machine for.....G. B. Brink  
Shade hanger, Window.....W. B. Caswell  
Shade holder.....C. A. Terry  
Shade rollers and curtain poles, Combined  
support for.....C. Leiby  
Shaft, Mechanism for giving intermittent  
rotation to.....W. H. Gamble  
Shafting, Flexible.....S. D. Bradley  
Shipping case and display cabinet, Combined  
.....J. Lines  
Shirring machine, Cloth, &c.....A. F. Mrook  
Shock compressor.....C. E. Morrison  
Shoe back strap.....C. M. Benninghaus  
Shoe forming machine.....R. F. McFeely  
Shredding machine.....C. S. Leonard  
Sign receptacle.....J. S. Crossley et al.  
Signal box.....A. D. T. Libby  
Signal switch stand, Safety.....R. K. Rex  
Signal system.....C. B. and J. F. McLeer  
Signaling system.....A. C. Bell  
Signaling system.....H. A. Rugh  
Silo.....I. S. Hart  
Silo.....N. J. Schlachter  
Speins, Producing patterns on hair-covered.....P. Merkel  
Sled brake, Bob.....S. B. McIntire  
Slipping, Device to prevent.....W. S. Williams, Jr.  
Smoke and cinder conductor for locomotives.....S. Wheeler  
Snare strainer and muffler.....W. F. Ludwig  
Solar heat, Device for utilizing.....A. H. Evans  
Sole edge trimmer and burnisher, Shoe.....J. W. Schneider  
Spark plug.....R. A. Stranahan  
Spark plug.....A. J. Parchem  
Speed gage.....L. A. Casgrain  
Speed mechanism, Variable.....G. Richards  
Speed or distance indicator, Driving mech-  
anism for.....W. F. Kendall  
Speed recording device.....W. F. King  
Spinning machine spindle driving device.....I. Etlich  
Spring attaching means, Coiled.....H. A. Ogle  
Square with guide head, T.....E. Wuest  
Stamp, Automatic inking.....G. Carleton  
Stamping or punching machine, Matrix.....F. H. Pierpont  
Stapling machine clenching device.....J. S. Dobbins  
Starting device.....C. T. Henderson  
Station and a moving car, Means for the  
interchange of messages between a.....  
O. T. and J. L. Smith  
Steam, Apparatus for diverting exhaust.....F. F. Coggin  
Steam feed and piston rod support, Auto-  
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Steam trap.....E. E. Gold  
Steel poor in carbon, Hardening.....C. Brurian  
Stone cutter's instrument.....G. W. Sherer  
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Stove.....L. F. Brecht et al.  
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Stove rim polishing machine.....G. L. Wallace et al.  
Straps, Machine for bending lng.....G. F. Ivey  
Street sweeper.....S. S. Case  
Strut.....A. F. W. MacManns  
Sugar centrifugal scraper.....R. N. Moore  
Sulfite liquor, Concentration of waste.....C. Ellis  
Suspensers.....S. Martin  
Switch operating mechanism.....T. E. Heeter  
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Syringe, Fountain.....S. B. Goff  
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ping device for.....R. De Lan  
Teaching geography.....M. Manson  
Telegraph circuits, Interference preventer  
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Telegraphic apparatus, Electric.....H. G. Martin  
Telephone attachment.....D. W. Leppert  
Telephone booth (2 pats.).....D. W. Carter  
Telephone meter.....R. B. Head  
Telephone receiver holder.....W. D. Miller  
Telephone system.....C. C. Bradbury  
Telephone transmitters, Carbon grain cells  
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Temperature alarm.....W. C. Elsacer  
Thermotic switch.....G. F. Humphreys  
Threshing machine tongue and pole.....  
.....G. W. Bordeleau  
Thyroid glands and other organs in a pure  
state, Obtaining the inner secretions of  
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Ticket holder.....E. Otter  
Tire.....W. F. Gaul  
Tire, Automobile.....C. L. Butler  
Tire, Cushion.....W. D. McCormack  
Tire filler.....W. B. Buckley  
Tire lock, Automobile.....B. A. Alperin  
Tire making machine.....L. D. Crosby  
Tire, Resilient.....J. M. O'Rear  
Tongs, Electric welding (2 pats.).....  
.....J. A. Osborn  
Tongue.....B. Brown  
Tool, Combination.....J. Stauder  
Tool handle.....A. McDermid  
Tool holder.....C. Tilssner  
Tool, Motive fluid operated.....D. S. Waugh  
Toy.....J. L. Hofer  
Toy cycle.....O. J. Jackson  
Traction engine.....B. Cox  
Train stopping mechanism, Electrically ac-  
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Transom lifter.....J. H. Gartner  
Trolley.....W. T. Miller  
Trolley switch and crossover, Overhead.....  
.....W. M. Simpson  
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Tube scraper.....H. J. Thorsen  
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ing flexible.....N. S. Harter  
Tubing, Manufacture of.....P. Patterson  
Tunnel kiln.....E. R. Sutcliffe  
Turbine, Elastic fluid.....W. E. Snow  
Turbine, Elastic fluid.....O. D. H. Bentley  
Typecasting and composing machines, Con-  
trol mechanism for.....J. S. Baneroff et al.  
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chanism for.....F. H. Pierpont  
Typewriting machine.....W. J. Barron  
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.....A. Erickson  
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Valve, Flushing.....S. C. Lindley  
Valve for engines, &c., Rotary.....  
.....A. E. Moorhead  
Valve for hot water circulating systems,  
Pressure controlling and relief.....  
.....G. L. Bottum  
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Valve gear for fluid pressure motors, Gov-  
erning.....C. A. Dawley  
Valve grinding and fitting machine.....  
.....S. S. Shields et al.  
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Vehicle support.....A. E. and J. W. Blair  
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Vehicle wheel.....J. F. Koen  
Velocipede stand.....K. Porzig  
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.....W. P. Randall  
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Violins, Tone modifying device for auto-  
matic.....J. Wanters  
Vise, Tilting.....F. A. Schulz  
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Wagon box.....J. H. Fields  
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Water elevating and impelling apparatus.....  
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Water gage.....C. F. Gerlinger  
Water motor.....S. S. Kelehner  
Water tube boiler.....J. C. Mooney  
Water wheel safety stop.....C. Jackson  
Wax, Treating the candleilla plant for the  
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.....R. M. Galbraith  
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Window construction.....W. Dulles  
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&c., Storm.....W. M. Hallbauer  
Window screen.....T. Baker  
Window screen, Roller.....A. K. Lovell  
Wire fabric.....J. Schwartzman  
Wooden articles buried in the earth, Pre-  
serving.....N. Kolar et al.  
Work support.....R. F. McFeely  
Wrapper folding machine.....S. G. Lipscomb

Wrench.....A. Gapp  
Wrench.....B. C. Wildmo  
Wrench.....E. B. Brink  
Wrench.....P. Fernandez

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Adjustable clamp.....D. Masor  
Advertising device.....J. T. H. Mitchell  
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Aeroplane.....A. Goebel  
Aeroplane.....A. A. Schilleurt  
Aeroplane flying machine.....P. Levins  
Air, Moisture supplying device for carbu-  
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Alarm device, Combination.....M. R. Hurchison  
Amalgamating apparatus.....A. A. Lockwood  
Ammonia from gases, Recovering combined.....  
.....H. L. Doherty  
Ammonia salt from the distillation gases of  
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coal gas, Manufacturing.....H. L. Doherty  
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Auto fender.....A. L. Raven  
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Automatic regulator.....R. S. Blair  
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Automobile attachment.....L. P. Halladay  
Automobile bumper.....J. and A. H. Hanna  
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Axles, Means for attaching safety wheels to  
car.....J. T. Andrew  
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Baling press.....F. Shirliff  
Baling press.....M. C. Nixon  
Ball mill.....H. Ostwald  
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Bed, Adjustable.....E. J. Robinson  
Bed, Convertible.....A. E. Ireland  
Bed, Convertible table (2 pats.).....  
.....A. F. Westerstrom  
Bed, Couch.....G. F. Sisbower  
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Bedstead, Sofa.....R. Coopersmith  
Belt support.....I. C. Isaacs  
Beverages containing carbonic acid, Contin-  
uous manufacture by fermentation of.....  
.....A. Romer  
Blind, Venetian.....O. Gothert  
Blotting pad.....C. A. Smith  
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Blood pressure determining device.....  
.....B. R. Hoobler  
Body support, Invalid's.....E. S. Weaver  
Boiler casings, &c., Closure for.....  
.....C. D. Mosher  
Boiler tube leak stopper.....C. S. Clark  
Boilers, Direct feed chamber for.....  
.....R. O. Thomas  
Book and fire, Combined blank.....F. W. Lea  
Book, Card and address.....J. F. Davidsoy  
Book, Manifolded.....B. C. Maxwell  
Book, Manifolded sales.....W. Greig  
Bookkeeping machine.....G. E. Johanson  
Boots, &c., Fudging tool for.....F. Richter  
Boring and tunneling machine, Shaft.....  
.....W. F. Wittich  
Boring tool centering cap.....A. De Villbiss  
Boring wooden bobbins, Machine for.....  
.....D. S. Courtney  
Bottle attachment.....F. A. Embling  
Bottle blowing machine.....J. Murphy  
Bottle cap.....T. A. Nissinen  
Bottle cap.....W. G. Revel, Jr.  
Bottle caps, Applying.....T. A. Nissinen  
Bottle capping machine.....B. Adriance et al.  
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Bottle closure.....J. Marian  
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Bottle handling apparatus.....H. J. Chilton  
Bottle lock, Non substitutive.....  
.....F. J. Cameron  
Bottle, Nonrefillable.....A. E. Poole  
Bottle stoppering machine.....A. J. L. Lassen  
Bottle support, Nursing.....W. H. Saunders  
Box.....A. M. Wright  
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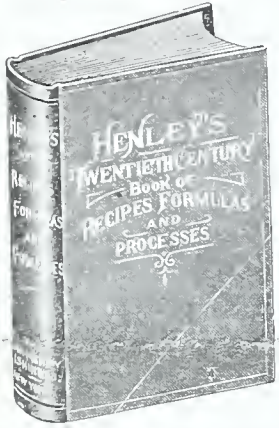
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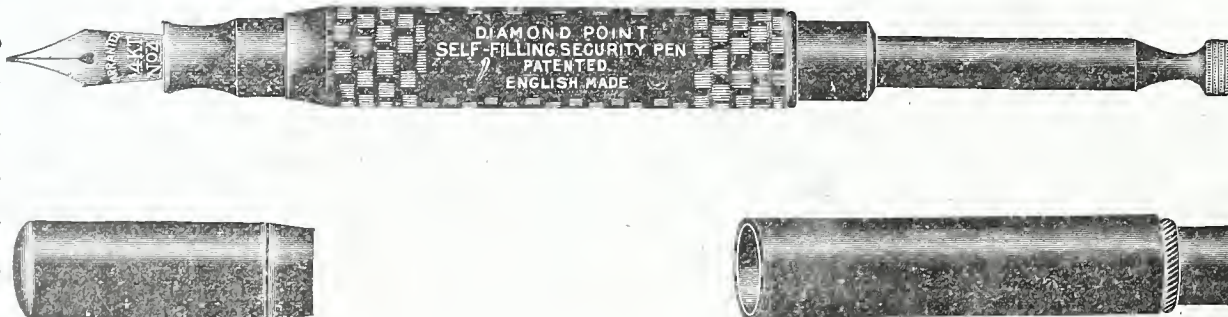
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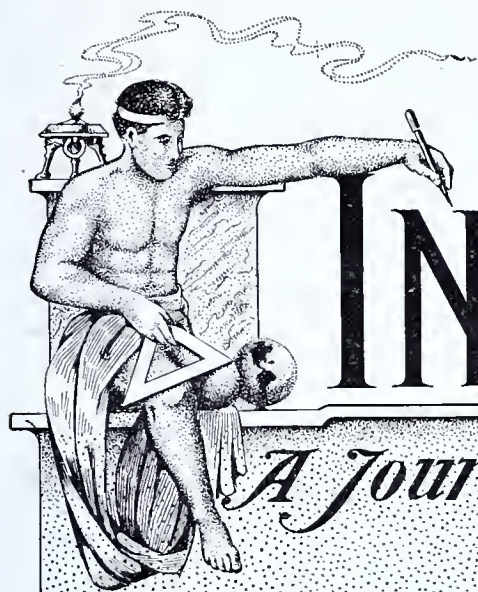
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## NINE MILES OF HUGE SIPHONS.

By CHARLES ALMA BYERS.

THE \$23,000,000 aqueduct which the city of Los Angeles, California, is just completing has attracted the attention of engineers all over the country, and has received, incidentally, an almost unparalleled amount of publicity. In spite of all the attention given it, however, one of the most re-

This total of nine miles of siphoning is made up of several sections, the different sections forming the connecting links that carry the water across the depressions—from one mountain range to another, or from tunnel to tunnel. The siphons are therefore inverted. Two of the longest sections



FIG. 1.—EASTERN HALF OF SOLEDAD SIPHON.

markable features of the undertaking has almost entirely escaped notice—namely, its siphons. In the aqueduct's course of 246 miles, there is a total of nine miles of siphons: and it is claimed by the engineers that no other project has ever used so much steel piping of large diameter, nor has siphoning on such a large scale or for such long distances been attempted elsewhere.

are each nearly a mile and a half in length, and there is a third important section that is almost a mile long. The remaining siphons that complete the total mileage vary in lengths from several feet to about one-half mile.

The longest section, known as the Jawbone siphon because it crosses Jawbone Canyon, is 8,135 feet long, and ranges in diameter from 7 feet 6

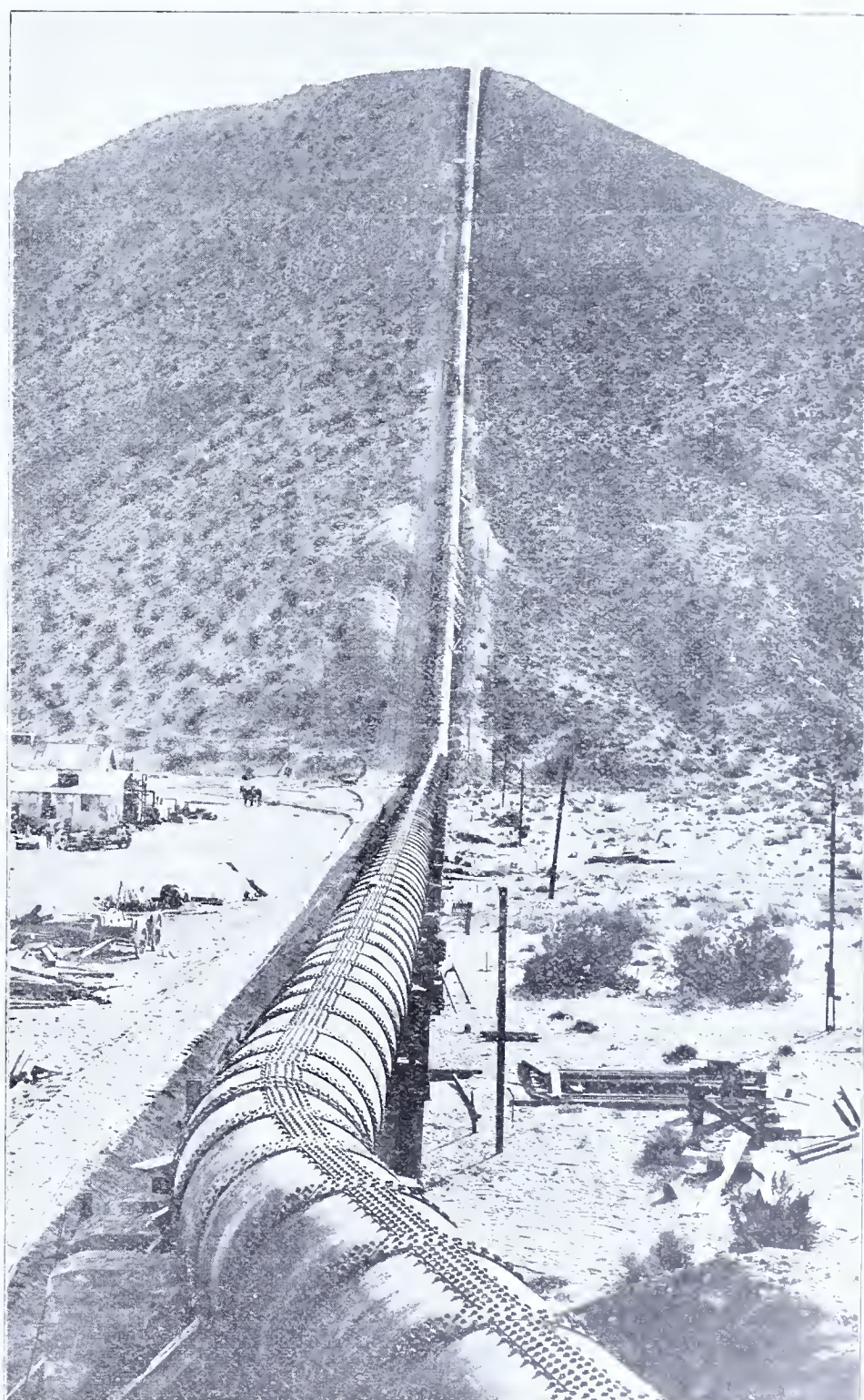


FIG. 2.—THE LARGEST SECTION, KNOWN AS THE JAWBONE SIPHON.



inches to 10 feet. It weighs 3,243 tons, and the thickness of its steel varies from  $\frac{1}{4}$  of an inch to  $1\frac{1}{2}$  inches. It is calculated to carry a maximum head of water of 850 feet. Considering the weight of the metal and the size of the pipe, this siphon is probably the most noteworthy in the world.

The next longest section, called the Soledad siphon, 8,060 feet long, and 11 feet in diameter, is the largest pipe used for siphoning in the world. The weight of the steel in this section is 2,241 tons. The Soledad siphon passes under a line of the Southern Pacific railroad, and is visible to passengers traveling over the road. The accompanying photographs show views of the Soledad and Jawbone Siphons. The size of this huge piping was graphically illustrated when a four passenger automobile, with the top raised, was driven through a section of it without grazing.

The third important siphon of the aqueduct, which crosses Deadman Canyon, is 4,226 feet in length, and weighs 1,068 tons. It is approximately 9 feet in diameter, and the thickness of the steel ranges from  $\frac{1}{4}$  to  $\frac{1}{2}$  inch.

The steel used in the construction of these siphons is purchased from Eastern companies for \$1.44 per hundred-weight. The steel more than  $\frac{1}{2}$  inch thick is built up in 30 foot sections at the factory and shipped in this condition, each of these sections making a full carload in weight. In order to get the benefit of carload rates on the steel less than  $\frac{1}{2}$  inch thick, it is usually purchased in plates, which are rolled and punched but not riveted together. These plates are "nested" together on the cars, and after their receipt at the aqueduct are erected by day labor, under direction of the city of Los Angeles. The cost of erecting the siphons, exclusive of trenching, has increased from about  $3\frac{1}{2}$  cents per pound for the large ones to 5 cents per pound for the small ones.

The entire conduit line of this aqueduct, 246 miles in length, extending from its source in the Sierra Nevada Mountains to the distributing point, comprises, in addition to the nine miles of siphons, 22.2 miles of unlined canal, 164.23 miles of concrete covered conduit, 10.11 miles of tunnel through earth, 18.24 miles of tunnel through rock, 1.8 miles of steel flume, 7.5 miles of reservoir length, and 12.5 miles of natural rocky bed of stream in a steep canyon.

The aqueduct will cost a little in excess of \$23,000,000, and is designed to supply the city of Los Angeles with water for a possible population of two million, aside from developing about 150,000 horsepower of electrical energy, which will be either sold or utilized by the city. It will furnish a supply of about 300,000,000 gallons of water daily, and until the city of Los Angeles shall require the entire supply, a large quantity of the water will be sold for irrigation purposes.

#### Novel Poultry Feeder.

A new type of automatic feeder for chickens has a bait that is pecked by the fowls, and this action causes a shower of grain to be released from the machine. The device has a gal-

vanized iron receptacle filled with grain, with a revolving toothed wheel at the bottom. This wheel can be moved at the slightest touch, and attached thereto is a shaft that carries a hollow tube of wire netting containing wheat, which serves as the bait. When the fowls peck at the wheat in the tube, the wheel is caused to revolve and grain is ejected from the receptacle and is scattered on the ground, ready for the poultry to pick up. Only a certain quantity is thrown out each time, and this prevents the fowls from gorging themselves.

#### Smaller Currency.

There is going to be less money in the hands of the American people in the near future—that is, the paper currency is going to be less in size. The Treasury Department has decided that too much money was being put into the bills that it issued, and it is making new and smaller ones. A dollar bill today is over seven inches long and more than three inches wide. It is to be cut down to six inches in length and two and a half in width. The same will apply to notes and certificates of all other denominations. It is calculated that the government will save about \$600,000 a year through this change. The saving on paper alone will amount to upwards of \$90,000, for the 240,000,000 notes that are issued each year. The labor will be diminished about one fifth. Less engraving will be required, less ink will be used, and when one counts in all the processes of printing, examining, counting, drying, etc., the gain to the government, it is estimated, will be that given above.

It is believed that the new bills will last much longer than the old ones, because they will not need to be folded so many times to be put into the ordinary pocketbook. This means that there will be fewer bills to be redeemed, and the number of clerks in the redemption division of the Treasury can be reduced. The new money will be more convenient for the public, and also easier for bank clerks to handle.

It is planned at the same time to reduce the nineteen designs on the currency now in use to nine, using the same portrait on one denomination throughout. Thus the one-dollar bill, whether treasury note, bank note or certificate, will bear the head of Washington in its center. Its holder will know the denomination without looking at the figure.

The new currency is of just the same size as that used in the Philippines, which has been tried and found to give good results. The new bills are now being made, but it will take eighteen months before the change is complete. It may be noted here that to print and issue a dollar bill costs the government just one cent.

THE INVENTIVE AGE contains sound advice to inventors and patentees. For lack of such advice many have lost money. Subscription price, one dollar a year.

## REGISTRATION OF TRADEMARKS.

### Criticisms and Suggestions of the U. S. Trademark Association.

Under date of August 21, 1912, a joint resolution passed the two houses of Congress, requesting the President of the United States to have an investigation made of the Patent Office, with a view to determining whether or not the present methods, personnel, equipment and building of the Office were adequate for the performance of its functions, and to recommend to Congress such measures as might appear necessary to enable the Office to discharge its functions in a thoroughly efficient and economical manner.

The President's Commission on Economy and Efficiency, to whom the conduct of this investigation was entrusted, sent out a request to members of the patent bar and others, asking for suggestions along certain lines indicated by a series of questions, one of which had to do with suggested changes in the law or procedure in the Patent Office with respect to trademarks, prints and labels. The Association being requested to submit such criticism or suggestions as it might properly, the following report was prepared in behalf of the Association and forwarded to the commission:

#### THE PRESIDENT'S COMMISSION ON ECONOMY AND EFFICIENCY,

White House, Washington, D. C.

Pursuant to your request dated Oct. 31, 1912, I have the honor, as Secretary of the United States Trade-Mark Association and with the approval of its board of directors, of submitting for your consideration the following suggestions relative to that portion of the subject of your *twenty-third* inquiry, relating to the existing law and procedure in the Patent Office with respect to trade-marks.

The registration of trade marks in the United States has always been a branch of Patent Office work. This condition grew naturally out of the early history of statutory protection to trade marks in this country. One of the forms of invention protected under our patent laws since 1842 has been that of new and ornamental designs for articles of merchandise. Before the enactment of a law for the registration of trademarks as such, a practice grew up in the Patent Office, under a confessedly strained construction of the patent act, of issuing design patents for trade-marks. The practice continued until the enactment of the first trade-mark law, that of 1870, when Commissioner Fisher declared that no further applications to patent "designs for trade marks" would be considered.

The law of 1870 for the protection of trade-marks was a part of a statute to revise and consolidate the statutes relating to patents and copyrights. The discussions in Congress relating to these sections of the bill make it clear that the power asserted by Congress thus to protect trade-marks was supposed to be derived from that clause of the constitution giving to Congress the right to secure to authors and in-

ventors for a term of years, the exclusive right to exploit their writings and discoveries. For this reason, the register of trade marks was regarded as properly under the supervision of the Commissioner of Patents and its keeping as a legitimate part of the work of his Office, and such was the disposition thereof made by the statute. Although the decision of the United States Supreme Court in the trade-mark cases declared that no substantive relation existed between the trade-mark and the patent, the association between them which thus grew up has continued to the present time.

The subject-matter of patents is distinct and independent of trade-marks. The two species of property have an analogy and are governed by radically different principles. The grant of a patent is the concession of a monopoly, whereby society is deprived during a term of years of the free enjoyment of some fruit of its material progress. A trade-mark is a mere mark of origin for the goods to which it is applied, the right to the use of which, although exclusive, involves no monopoly in the production of the goods themselves nor in the traffic therein. It is a right which society makes exclusive for its own protection against imposition, and for the better assuring to the manufacturer and trader of the good will in the business he has established. A patent is the grant of right affecting the production of an article or the application of a process, and includes the privilege of producing the article, of applying the process, or of suppressing at will the production of one, or the use of the other. A trade-mark is purely a commercial symbol, that exists only in connection with the article whose origin it identifies, and the right to which survives only so long as it remains the badge of a lawful commerce. The association of the one with the other in law and in administration is wholly arbitrary, quite unnecessary, and entirely without reason. It is responsible for much of the existing haziness in the public mind as to the nature of the trade-mark, and of the property therein, and has tended to obscure the real importance of this most valuable adjunct to the growth of commerce.

Neither has it operated to develop a scientific or efficient service in the registration of trade marks in the Patent Office. The most important subject is placed in charge of an examiner of trade-marks and his assistants, trained in the Patent Office in the examination of patent applications and steeped in the traditions of restriction upon private monopolies, which it has been the duty of the Office for a century and a quarter to enforce. The examining and passing upon trade-mark rights is regarded as but a subdivision of patent practice. The examining force of the trade mark division is recruited from the regular staff of patent examiners, and some-



times shifted from this division and back again, if the needs of the Office seem to require it. The examiners are usually ignorant of the substantive law of trade-marks. They have no experience of the commercial importance of the subject-matter with which they deal, nor of the commercial application of the principles which they formulate for their own guidance in the discharge of their duties.

All decisions in matters of interference or oppositions affecting trade-marks are rendered by the examiner of interferences, whose primary and principal task is the adjudication of contested issues involving the right to patents, a training which develops no fitness for the task of passing upon questions of trade-mark law or fact. An appeal from his decision lies to the Commissioner of Patents, heard by him in person or by an assistant commissioner, in either case by an official whose training has usually been that either of a patent examiner or of a patent attorney. The administration of the trade-mark registration law is, therefore, as far divorced from the commerce to which it relates and from the conditions governing that commerce as it is possible that it should be. It is commonly conceded that the work of the trade-mark division is far less efficient and satisfactory than that of the patent branch of the Office. It is hard to see how, under the present conditions, it could be otherwise.

This illogical and harmful association of trade-marks with patents should be at once and forever ended. There is every reason why the two should be as far separated in administration as they are distinct in substance. The grant of patents is a matter of the adjustment of privileges within our boundaries and is properly intrusted to the Department of the Interior. The protection of trade-marks is entirely incidental to the regulation of commerce and vitally affects that commerce as well abroad as at home. The statutory means thereto should be administered by the Department of Commerce and Labor, which is charged with responsibility for promoting the commercial interests and activities of the nation. The registration of trade-marks should be put in the charge of a registrar of trade-marks presiding over a bureau of that name and attached to the last mentioned department. He should be a person familiar with trade-mark law and with the commercial use of trade marks. He should have acquired his training outside the Patent Office, and not in the examination of patent applications. He should be cognizant by experience and training of the importance to our commerce of the subject-matter with which he deals, and should know the bearing of his official acts and rulings upon the development of that commerce, both here and abroad. He should be a man of ability commensurate with the value of the property rights with which he is called upon to deal, and not an underpaid subordinate, diverted from the work in which he was trained.

Decisions adverse to applicants should be rendered by the registrar in

person or reviewed by him as of course, and from his decision an appeal should lie in the first instance to a competent court. The appeal within the Office should be abolished. The relative futility of the present system of appeals in trade-mark matters within the Patent Office is indicated by the fact that three hundred and fifty three decisions of the Commissioner of Patents in trade-mark cases reported in the Official Gazette during the ten years from 1902 to 1911 inclusive, three hundred and twenty-five were affirmances of the decisions of the examiner of trade-marks or of the examiner of interferences, and only twenty-eight, or less than eight per cent, were reversals of these decisions.

The first specific criticism to be made of the conduct of trade-mark matters in the Patent Office goes to the spirit and attitude of the Office toward applications for the registration of trade-marks. It is a recognized fact that this attitude is one not of assistance, but of opposition, which seeks, not a course by which the application for registration may be granted, but a ground upon which it may be refused. The statute is strictly construed against the applicant, as if intended not to confer rights, but to curtail them. This attitude appears to be a direct outgrowth of the training which the examiners of trade-marks have had in the patent branch of the Office. In the latter branch, where the grant sought by the applicant is one of a monopoly that shall, during a period of years, restrict the rights of the public, the burden should be upon the applicant to show conclusively his right to the grant sought, and any doubt should be resolved against him.

The registration of a trade mark does not, however, confer any property right. Its effect is purely evidentiary and, for purposes of evidence, it is *prima facie* only. The grant of a certificate neither detracts from the rights of the public, nor impairs those of any adverse claimant to the same or a similar mark. An attitude of antagonism, therefore, to registration is quite without justification. The attitude of the Office toward applications to register trade-marks should be one of liberality, and its efforts should be directed to affording the greatest possible degree of protection to legitimate trade in the interests both of the trader and of the public. A change in the policy of the registration office in this respect would be one of the first advantages to be anticipated from the independent administration of the trade-mark registration law, putting this branch of the service on a rational and liberal basis, where it should be administered in the interest of American commerce, here and abroad.

Akin, perhaps, to this last criticism is one which goes to the practice of the Office, of rejecting applications to register marks, upon grounds of public policy not recognized by the statute. Thus, it has refused registration to the portraits of former presidents of the United States, and other distinguished personages, as tending to detract from the dignity of the high

positions which they have occupied. The rule was first enunciated in the year 1898 with respect to Admiral Dewey, and has since been applied in applications to register the names or portraits of King Edward VII, of Grover Cleveland, and of Thomas Jefferson. It has been lately invoked to justify the rejection of a mark adopted in 1879 and registered in 1881 under the statute of that year, but for which the owner is unable to obtain the protection of the present statute. There may be differences of opinion as to the propriety of permitting the registration of these marks. There should be no differences of opinion on the proposition that the right to determine that question rests with Congress, and not with an administrative officer. The act of 1905 having dealt with the whole subject of trade marks after the enunciation of the above rule by the Commissioner of Patents, its silence on this point should, it would seem, be construed as disapproving the latter's position.

The like arbitrary attitude has been evinced in the case of labels alleged to violate the provisions of the food and drugs act. Under the trade mark statute, the applicant is required to file specimens showing the trade-mark as actually used upon the goods. Ever since the passage of the food and drugs act, the Patent Office has refused to accept, for filing under the trade-mark law, labels containing any matter which, under the ruling of the authorities charged with the execution of the former law, was held to be misbranding. Assuming this practice to be justifiable when the misbranding is clear, it ceased to be so in one notable instance, when the United States Supreme Court in the Johnson case, held that exaggerated statements in labels as to the curative properties of medicinal preparations did not constitute a misbranding. Notwithstanding that decision, and the failure of Congress to amend the law, the Office has continued to reject applications for registration on the ground that a remedy is misbranded when the labels use the word "cure" in describing its uses and properties.

The most burdensome feature in the practice of the Patent Office touching trade marks is that which causes the conduct of oppositions, interferences and cancellations to follow the present practice in equity suits in the United States courts. It would be difficult to devise a more cumbersome, dilatory or expensive method of procedure than that now in force in equity suits in the Federal courts. As adopted in the Patent Office, it involves conformity to purely artificial rules and forms of pleading, argument of useless demurrers, taking of testimony of witnesses orally, with an opportunity for cross-examination which is seldom exercised, printing of testimony and of briefs for submission to the examiner of interferences, all for the determination of an issue, the decision in which is not binding upon the parties outside the Patent Office, and in no way determines their rights before the courts, either as between themselves or towards others. These proceedings often involve an expense of thousands

of dollars to obtain the registration of a trade-mark.

Now that the United States Supreme Court, by rules to take effect February 1, 1913, has practically abolished this procedure, and provided for the taking of testimony in equity suits in open court, it is an especially opportune time to consider a reform of the Patent Office procedure. Evidence should be submitted in the form of affidavits. In view of the lack of finality of every decision of the Office in trade-mark matters, it would be better to sacrifice something of the thoroughness of the inquiry, for the sake of simplifying, expediting and cheapening the procedure. Courts, both state and Federal, are daily called upon to adjust the rights of parties upon affidavits, and find no difficulty in doing so.

Under the English practice, the registrar of trade-marks must determine the issue in cases of contested rights to trade-marks, upon affidavits or declarations, subject to revision by a court before which witnesses may be orally examined and additional evidence adduced. Yet the grant or refusal of registration under the English statute is much more serious than under our own, since registration after five years becomes conclusive evidence of right to the mark, unless fraudulently obtained, or unless the mark be deceptive, immoral or scandalous. A similar procedure should be adopted in our practice. Only on a review of the administrative action should the parties be obliged to produce their witnesses for oral examination or cross-examination.

Nor is there any reason why the parties to a contested trade-mark proceeding should be put to the expense of printing a voluminous record and briefs for the convenience of the examiner. Such a requirement nowhere else exists, except in the Federal equity practice, and in the rules of appellate courts.

The views of interested parties, whose rights in the same or similar trade-marks are claimed by the Patent Office to conflict, should be given a controlling influence, in determining a doubtful case, when it is evident that the parties are acting neither fraudulently nor collusively. It frequently happens that an application is rejected because of some more or less remote similarity to marks previously registered and still in use. In such cases, the Patent Office, deeming itself a guardian of the public against confusion, gives too little weight to the fact that those who, if anybody, would be primarily injured by the registration, interpose no objection, or expressly consent thereto. Here again the Office loses sight of the commercial aspect of the question before it. Whether two marks conflict in use is a question of fact, and where the owners of the marks themselves have found no conflict and no confusion arising from the simultaneous use of the marks, this circumstance should usually control the opinion of the examiner as to their deceptive similarity.

An applicant who has removed from his application a feature of the mark,



for the registration of which he originally asked, should not be required to disclaim the right to the exclusive use of the feature so removed and swear that he regards it as neither material nor essential to his trade mark. It sometimes happens that, when application is made for the registration of a trade mark, a single feature of that mark is alleged to conflict with some other registration. The elimination of this feature leaves a mark that can be registered. If the applicant chooses to avoid an argument as to the fact of conflict and eliminate part of the mark for which application was first made, he should be allowed to proceed with his application after the removal of that feature from the drawing and the application. He is now required to furnish an affidavit stating that the eliminated feature is not deemed material or essential, and that he disclaims the right to the exclusive use thereof as his trademark or as any part thereof. There is no warrant in the law for this requirement, and no reason why the applicant should be required to make an affidavit and disclaimer by which his rights may be seriously impaired at some subsequent time, in other proceedings, either within or without the Patent Office.

When the examiner has evidently overlooked a registered mark that should bar a pending application and has passed the latter to publication, some procedure should exist whereby, when the fact appears, the case can be returned to him to consider the effect of the registration that he has overlooked. Now, when such a condition arises, the earlier registrant must file an opposition to the application, taking the burden of proof upon himself, and go through the formality of proving what is already of record in the Patent Office. This frequently involves much delay and unnecessary expense to the registrant, which would be saved if the examiner of trade-marks were given an opportunity to pass upon the prior registration and its effect upon the pending application.

Moreover, when this situation arises, if the owner of the registered mark relies merely upon the record of his prior registration and goes to final hearing upon that evidence, he loses the right to put in other evidence in case that should be held insufficient, on the ground, for example, that it does not appear from an inspection of the application that the marks are themselves sufficiently alike, or that the goods to which they are severally applied are sufficiently alike, so that confusion would result. Under the existing procedure, he must either run the risk of such an adverse decision or must take other testimony and interpose other evidence, which will be rendered entirely superfluous if it be held that the application is already barred by the record of the prior registration.

The rules should provide for a determination in the first instance of the effect of those things which are matters of record, where it is reasonably evident that the registrability of the mark applied for may be decided upon such record evidence. Only after these matters have been disposed of, should

it be necessary to pursue the formal course of opposition and the taking of testimony. It has happened that owners of registered trade marks have been put to an expense of hundreds of dollars to defend their registrations against evident infringements, which should never have passed the hands of the primary examiner, and in proceedings where the applicant took no testimony and made no active effort in behalf of his application.

The law provides that any registered mark may be assigned and the assignment recorded in the Patent Office. The Office holds that only the original assignment can be so recorded. It frequently happens that the right to a trade-mark has passed, together with the good will of the business in which it was used, under a general assignment for the benefit of creditors, which under the laws of the several states is required to be filed and recorded in certain public offices and must necessarily there remain. In such a case, there is no way in which the transfer of title can be made a matter of record in the Patent Office. A copy of the assignment duly certified by the public official charged with the custody of the record is rejected by the Patent Office, which refuses to accept for record any other than the original. A copy properly authenticated would be received in evidence in any court in the United States, and even under the recording acts of the states would be admitted to record to evidence the passage of title to real property. If necessary, the statute should be modified so as to permit the recording of an authenticated copy of any instrument under which the title to a trade mark has passed, where the original is filed or recorded pursuant to law in any public office.

The provision for registration by classes of goods should be so modified as to permit the registration of a mark in one application for several classes of goods, upon the payment of a separate fee for each of the classes covered by the application. The only purpose of registration of a trade-mark in the Patent Office is, in many instances, the registration of the same mark abroad. The requirement that a registration covering more than one class of goods should be the subject of a separate application and a separate certificate, means, in many cases, a duplication of registrations in foreign countries, at a corresponding increase in cost. Were it permitted to combine in one certificate the registration of a mark in several classes, a single registration abroad could frequently be made to have the same effect as a number under existing conditions.

Finally, costs should be imposed upon the unsuccessful party to an opposition interference or cancellation proceeding. Were the practice of most foreign countries followed in this respect, many dilatory and costly proceedings would be brought to a speedy and economical conclusion by the consent of a party whose position is hopeless from the beginning, but who now incurs no penalty, however great the inconvenience and expense he imposes upon his adversary.

New York, Nov. 29, 1912.

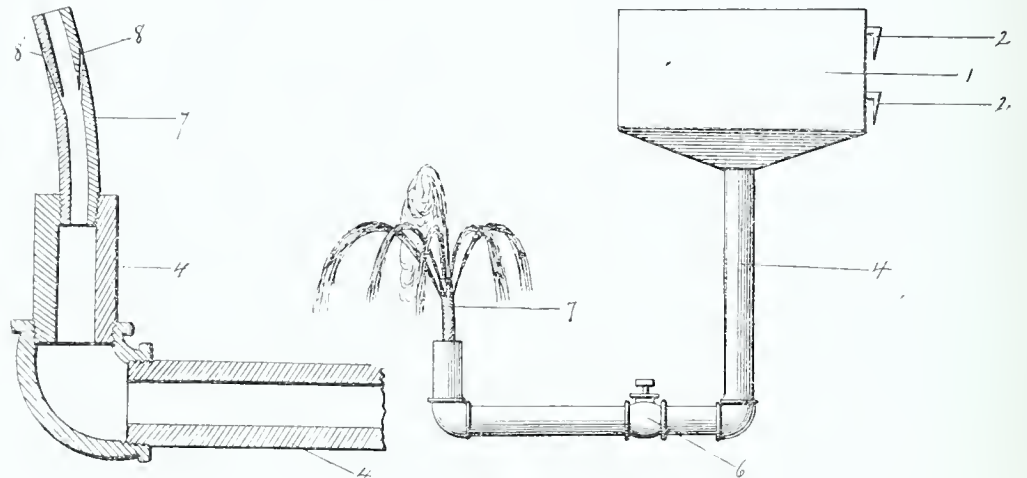
Respectfully submitted,

THE U. S. TRADE-MARK ASSOCIATION,  
Arthur Wm. Barber,  
Secretary.

#### Drinking Fountain.

Drinking fountains are being found in new places daily. The law in many states has prohibited the use of the old time dipper or glass that was used in common by all comers, on railway trains, in stations and other public places. Individual cups are being used widely, but for those who do not care to incur this expense, the drinking fountain is the proper substitute. It has been noted, however, that even this device is not always free from

strike a person's face if he tries to place his lips on or too near the outlet of the nozzle. A shield may be arranged around the fountain, with points on the top, to prevent people from putting their lips over the nozzle; but as a rule, it will be enough to use the screen of water. A user may drink from the main stream without interference, but if he approaches his mouth too near, the small jets of water will strike his face. The storage tank is so constructed that the water is shut off when the supply gets low.



contamination. Users sometimes manage to bring their lips in contact with the nozzle, and an ingenious method of preventing this has been invented by John C. Davis, of Dighton, Mass., and assigned to the H. Mueller Mfg. Co. of Decatur, Ill. As seen in the accompanying cuts, the fountain itself is connected with the city's water supply or with a tank, and the nozzle, which is slightly flexible, so that it can be turned in any direction, has a bore which serves as a continuation of the connecting pipe. In the walls of the nozzle are several minute holes, so arranged as to throw small diverging streams of jets of water up around the central stream. These streams will not rise to the full height of the main stream, but will rise high enough to

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# LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

## MINE & SMELTER SUPPLY CO. v.

BRAECKEL CONCENTRATOR CO. et al.  
(District Court, W. D. Missouri, S. W. D.  
July 8, 1912. 197 F. R. p. 897.)

### 1. PATENTS—SUIT FOR INFRINGEMENT—PRIOR DECISIONS.

While the obligation of comity as applied to patent cases is not imperative, it is something more than courtesy, since it had a substantial value in securing uniformity of decision.

### 2. PATENTS—VALIDITY AND INFRINGEMENT—AMENDMENT OF APPLICATION.

The Wittley patent, No. 590,675, for an ore concentrator, discloses patentable novelty and invention and a very high degree of utility, and is not invalid because of amendments made to the specification and claims while the application was pending in the Patent Office not shown to have been verified; such amendments having been well within the original invention as shown by the drawings and therefore within the scope of the original oath and by way of amplification of description. Claims 1, 2, and 7 also held infringed.

### 3. PATENTS—VALIDITY—AMENDMENT OF APPLICATION.

In determining whether matter introduced into an application for a patent by way of amendment is new matter, the original drawings are to be understood with such variations in form, shape, and proportions as common sense and mechanical skill in the art would suggest.

COMMERCIAL ACETYLENE CO. et al.  
v. SEARCHLIGHT GAS CO. et al.  
(Circuit Court, N. D. Illinois, E. D. June 26,  
1912. 197 F. R. p. 908.)

### 1. PATENTS—TERM—LIMITATION OF PRIOR FOREIGN PATENT.

In order that a foreign patent should be for the same invention as a later United States patent so that the latter expires with the former under Rev. St. § 4887 (U. S. Comp. St. 1901, p. 3382), before its amendment in 1897, the invention must not only be disclosed but claimed in the foreign patent, but substantial identity is all that is necessary, and the description need not be literally the same.

### 2. PATENTS—TERM—FOREIGN PATENT—ACETYLENE GAS TANKS.

The Claude & Hess patent, No. 664,383, for an apparatus for storing and distributing acetylene gas, is limited as to term by the British patent, No. 29,750, of 1896, granted to the same patentees, which expired by June 30, 1910. Also, held not infringed.

EQUITABLE ASPHALT MAINTENANCE CO. v. PARKER-WASHINGTON CO.  
(District Court, W. D. Missouri, W. D.  
July 8, 1912. 197 F. R. p. 920.)

### 1. PATENTS—VALIDITY AND INFRINGEMENT—MACHINE FOR HEATING SURFACES.

The Lutz patent, No. 839,071, for a machine for heating surfaces, designed for use in repairing asphalt pavement and comprising, generally, means for supplying a fluid heating medium, including a heating chamber, a conduit for such medium, and a jet blower discharging a blast of steam, preferably, into such conduit for forcing the medium against the surface to be treated, mingling with it and modifying its effect, is void for lack of novelty and invention. It covers a combination of elements all of which were old, and the combination itself is only differentiated from others in the prior art by substituting for a fan blower for forcing the heating medium against the surface to be heated, a jet blower which was also old in an analogous art, and its transfer required no more than mechanical skill. Also, held not infringed if conceded validity.

### 2. PATENTS—ANTICIPATION.

If the effect of a combination was present, though not emphasized, in a prior invention, a later applicant cannot, by mere explicit reference, transform it into patentable novelty and appropriate it to his own exclusive use.

### 3. PATENTS—ANTICIPATION—PRIOR PATENTS.

Rev. St. § 4886 (U. S. Comp. St. 1901, p. 3382), by authorizing a patent for any invention or discovery not known or used by others in this country, "and not patented or

described in any printed publication," places printed publications and prior patents on the same footing as anticipations.

ROTH et al. v. HARRIS et al.

(District Court, N. D. New York.)

July 23, 1912. 197 F. R. p. 929.)

### 1. PATENTS—INFRINGEMENT—PROFITS RECOVERABLE.

Although a patent is for an improvement only, the owner may be entitled on an accounting to recover the profits made by an infringer from the manufacture and sale of the entire structure containing such improvement, where the latter is of a paramount and controlling importance in giving market value to the structure as a whole, by converting what was before unsalable at a profit into a commercial success with ready sale at a large profit; and in such case it is immaterial that the actual cost of the structure aside from the improvement is much greater than that of the patented device.

### 2. PATENTS—INFRINGEMENT—ACCOUNTING FOR PROFITS—BURDEN OF PROOF.

Where, on an accounting for infringement of an improvement patent, complainant has proved the receipt of profits by defendant from the manufacture and sale of the improved structure, and that defendant has so kept its books that the profits realized from the patented and unpatented features cannot be separated, defendant has the burden of proof to make such separation, or it will be charged with all the profits.

### 3. PATENTS—INFRINGEMENT—ACCOUNTING FOR PROFITS.

An infringer of the Hobart patent, No. 765,240, for a tune-sheet attachment for piano players, held chargeable on an accounting, under the evidence, with all the profits made from the manufacture and sale of pianos containing the patented device.

INTERNATIONAL MAUSOLEUM CO. v. SIEVERT et al.

(District Court, N. D. Ohio, W. D. April 26,  
1912. 197 F. R. p. 936.)

### 1. PATENTS—VALIDITY—DETERMINATION ON DEMURRER.

In passing upon the question of the validity of a patent, when raised by the demurrer to a bill for its infringement, the court cannot take cognizance of anything dehors the record, excepting such matters as are of common knowledge.

### 2. PATENTS—VALIDITY—SUBJECT-MATTER—BURIAL CRYPT.

The Hood patent, No. 858,070, for a burial crypt, which, as described in the specification, is a building, with a central hallway and receptacles for bodies arranged in tiers on either side, is void as for a subject matter not within the patent laws, and also because the claims are each for aggregation of non-cooperating elements, all of which were old and nonpatentable.

NATIONAL CASKET CO. v. STOLTS.

(District Court, S. D. New York. July 5,  
1912. 197 F. R. p. 940.)

### 1. PATENTS—VALIDITY—PRIOR ART—BURIAL CASKETS—FACE PLATE.

Reissue patent No. 12,750 (original No. 619,567), issued to National Casket Company as assignee of William Hamilton for a gauze face plate for burial caskets, held devoid of invention, in view of the prior art, and was therefore invalid.

### 2. PATENTS—REISSUE—ABANDONED CLAIM.

Reissue patent No. 12,750 (original No. 619,567), issued to National Casket Company as assignee of William Hamilton, for a gauze face plate for burial caskets, held based on an abandoned claim made on the original application for a patent and was therefore invalid; the reissue statute (Rev. St. U. S., § 4916 [U. S. Comp. St. 1901, p. 3393]) being designed to save the inventor against inadvertence, accident, or mistake, and not to permit the bringing forward of claims previously deliberately abandoned by him after the original patent had been declared invalid in litigation.

SUNDH ELEC. CO. v. INTERBOROUGH RAPID TRANSIT CO.

(Circuit Court of Appeals, Second Circuit.  
July 8, 1912. 198 F. R. p. 94.)

### 1. PATENTS—VALIDITY—PRIOR PATENT OR PUBLICATION—PRIOR INVENTION.

A later patent was not in the prior art, so as to invalidate a patent in suit as a prior patent or publication, although it was granted on an earlier application; but it may be proved by competent evidence that the

later patentee was the original and first inventor by being the first to both conceive the invention and reduce it to practice, and such prior invention may be shown by his prior application, where there is no evidence to carry the invention of either patentee back of the date of his application, provided the invention of the patent in suit and of such application is the same.

### 2. PATENTS—VALIDITY—PRIOR INVENTION—ELECTRIC CONTROLLER.

The Sundh patent, No. 733,564, for an electric controller, held void on the ground that the patentee was not the original and first inventor of the device patented.

LORAIN DEVELOPMENT CO. v. GENERAL ELECTRIC CO.

(District Court, N. D. New York. July 22,  
1912. 198 F. R. p. 100.)

### 1. PATENTS—CONSTRUCTION AND VALIDITY—SUFFICIENCY OF CLAIMS.

However valuable, new, and novel the actual discovery and invention of a patentee, and however accurate the disclosure and description thereof in the specification of his patent, he must claim it, or it is deemed abandoned to the public. While that construction should be given to a claim which will uphold it, if it can be done without doing violence to the language used, it is not sufficient to uphold a claim that the court can see that the patentee intended to cover his real invention by the language used, when in fact he did not.

### 1. PATENTS—INFRINGEMENT—COMBINATIONS.

If a patentee introduce an unnecessary element into his claim for his invention, another, who discovers that such element is unnecessary or superfluous, and therefore does not use it, is not an infringer, although he makes a structure otherwise identical with that of the patent.

### 3. PATENTS—VALIDITY AND INFRINGEMENT—ARC LAMP.

The Carbone patent, No. 975,935, for an arc-lamp globe, specially adapted to the use of impregnated carbons, claims 1 and 3, which cover a globe "divided into a plurality of superposed chambers by suitable configuration of the walls," the middle or lighting chamber having a transparent wall, which surrounds the arc closely, so that the heat will prevent the condensation of the gases therein and their deposit on the globe to obscure the light, an upper or condensation chamber for such gases, and a lower or settling chamber, contemplates a physical separation of the chambers by the configuration or contraction of the globe, and, while not anticipated and valid, such claims are not infringed by a globe of conical shape with straight walls, without contractions or other configuration to divide it into chambers.

SUNDH ELECTRIC CO. v. GENERAL ELECTRIC CO.

(District Court, N. D. New York. July 29,  
1912. 198 F. R. p. 118.)

### 1. PATENTS—VALIDITY AND INFRINGEMENT—ALTERNATING CURRENT ELECTROMAGNET.

The Lindquist patents, No. 744,773 and No. 764,608, each for an alternating current electromagnet, and the second being for an improvement on the first by simplifying and lessening the cost of construction, construed, and held infringed.

### 2. PATENTS—INFRINGEMENT—INFERIORITY OF INFRINGING DEVICE.

If an alleged infringing device has substantially the same elements as that of the patent, with the same functions, all working on the same principle and in obedience to the same law, and in the same manner and producing the same result, it infringes, although it does not do the work as well or perfectly.

LOVELL-McCONNELL MFG. CO. et al. v. WAITE AUTO SUPPLY CO.

(District Court, D. Rhode Island. July 22,  
1912. 198 F. R. p. 130.)

### 1. PATENTS—CONDITIONAL LICENSES—CONSTRUCTION.

A label attached to a patented article sold by the owner of the patent to a dealer, licensing its sale or use only on certain conditions, one of which was that by its acceptance the purchaser acknowledged the validity of the patent, reasonably imports that the condition relates only to the specific article to which the label is attached, and it does not estop the purchaser to contest the validity of the patent, when sued for its infringement by the sale of articles made by

others and alleged to infringe, at least without proof that such indirect consequences of the acceptance of the condition were known and understood by the purchaser.

### 2. PATENTS—SUIT FOR INFRINGEMENT—PRELIMINARY INJUNCTION.

A complainant is not entitled to a preliminary injunction to restrain infringement by further sales by defendant of patented articles under a license agreement which it is alleged defendant has violated, where the bill also prays for additional relief which can only be granted if such agreement is still in force; complainant being required to elect between the two inconsistent positions.

RUSHMORE v. BADGER BRASS MFG. CO.

(Circuit Court of Appeals, Second Circuit.  
May 31, 1912. 198 F. R. p. 379.)

### 1. TRADE-MARKS AND TRADE-NAMES—UNFAIR COMPETITION—IMITATING DRESS OF COMPETITOR.

Where it appears that a competitor has unnecessarily and knowingly imitated his rival's goods in nonfunctional features, a court of equity is justified in interfering by injunction.

### 2. TRADE-MARKS AND TRADE-NAMES—UNFAIR COMPETITION—ACCOUNTING.

Defendant held chargeable with unfair competition in imitating in shape, appearance, and general design brass automobile lamps made by complainant, but liable only for profits made on such sales, as it is shown by direct or presumptive evidence that complainant would have made but for defendant; it appearing that to a large extent defendant's lamps were sold on their merits and on defendant's reputation, without any reference to their resemblance to complainant's.

A. B. DICK CO. v. FULLER.

(District Court, S. D. New York. July 16,  
1912. 198 F. R. p. 404.)

### 1. PATENTS—ASSIGNMENT—COVENANTS—VALIDITY—DISCLOSURE OF FUTURE INVENTIONS.

A covenant by the assignor of a patent covering stencil paper to disclose all future inventions relating to stencil paper and processes or methods for preparing, reducing, and using same, construed as covering such processes as bear some relation to the patents or processes already discovered as valid.

### 2. EQUITY—BILL—DEMURRER.

A bill containing a general prayer for relief under defendant's covenant with complainant to disclose future inventions is good as against demurrer if the facts show that complainant is entitled to some relief, and the question whether the relief asked against defendant is so broad as to affect a third party cannot be raised by demurrer.

PANOULIAS et al. v. NATIONAL EQUIPMENT CO.

(District Court, S. D. New York. June 3,  
1912. 198 F. R. p. 493.)

### PATENTS—JUDGMENT—SUIT FOR INFRINGEMENT—ACCOUNTING—PRIOR JUDGMENT AS BAR.

The owner of a patent may bring either an action at law to recover damages for its infringement or a suit in equity for an injunction, with incidentally a right to an accounting for damages and profits; but he is not entitled to split up his cause of action, and a judgment for damages in an action at law, while conclusive on the parties on the questions of validity and infringement, is a bar to the right to an accounting in a subsequent suit in equity against the same defendant for other sales prior to the commencement of the law action.

NEW YORK MACKINTOSH CO. v. FLAM et al.

(District Court, S. D. New York. July 18,  
1912. 198 F. R. p. 571.)

### 1. TRADE-MARKS AND TRADE-NAMES—VALIDITY AND INFRINGEMENT.

The word "Bestyette" is sufficiently distinctive to constitute a valid trade-mark for waterproof capes and cloaks, but is not infringed by the use of the word "Veribest" by a defendant on similar garments.

### 2. TRADE-MARKS AND TRADE-NAMES—INFRINGEMENT.

The copying by defendants on their business cards and stationary of a picture used by complainant as a trade-mark on its goods does not constitute an infringement.



## MECHANICAL INVENTIONS

Patents for which have been procured through the Patent Soliciting Office of E. G. Siggers, Patent Lawyer, Washington, D. C.

Edson Potter, Brighton, New York. Window.—This invention has for its object to improve the construction of that type of windows which are equipped with vertically slidable stiles and horizontally pivoted sashes, and it is adapted to be readily applied to an ordinary window to convert the same into a reversible window. The window includes a sash, a slidable bar pivoted to the side of the sash, a metallic casing receiving and frictionally engaging the slidable bar and constructed of sheet metal and consisting of an inner wall and side walls having inwardly extending longitudinal flanges embracing the rear faces of the slidable bar. The metallic casing is split above and below the center of the same and is provided above and below the plane of the pivot with side flanges arranged to limit the swing of the sash.

Marion F. Welch, Hollis, Kansas. Derailment Guard.—This patent relates to a derailment guard adapted to be readily applied to a truck and arranged to positively engage the rail in the event of the wheels leaving the same, and capable of preventing the truck from turning edgewise and wrecking the train. The guard includes a shoe consisting of an approximately horizontal body portion extending longitudinally of a truck beneath the pedestal tie bar thereof, and provided at its outer side with a depending guard flange located above the plane of the rails, a combined connecting and spacing bar bent to form central and end supporting loops, and chains for connecting the terminals of the shoe with the body of a car for maintaining the truck in alinement therewith.

John B. Walker, Easley, Alabama. Collapsible Core.—It is the aim of the present invention to provide a core barrel designed for making iron and steel ingot molds, and adapted to maintain the sections or staves of the barrel rigidly in proper position while the core is being rammed up, and capable also of permitting a small amount of movement to allow for shrinkage when the metal cools, and of limiting such movement of the staves or sections to prevent a crumbling of the core. A further object of the invention is to enable the staves or sections to have sufficient inward movement to permit the casting to be removed, lifting it over the core barrel, and also to permit the staves or sections to be moved inwardly and the barrel pulled out of the casting by a single operation. Another object of the invention is to provide a collapsible core barrel provided with means for preventing the sand from breaking at the corners or angles formed by the movable staves or sections. It comprises a plurality of sections movable inwardly and outwardly, mechanism connected with the sections for expanding and contracting the same, and mechanism including a movable operating member, and a key engaging the said member and provided with a wedge-shaped locking portion and having a plurality of narrower portions of different widths for controlling the movement of the operating member.

Howard E. Warner, Harvey, N. D. Center Pin.—The object of this invention is to provide a device capable of reducing the liability of breakage of the king bolt, and adapted, in event of

breakage of the same, to enable such part to be easily and quickly replaced while on the road without impairing the efficiency of the locomotive. The improvement resides in a hollow center pin having a circular king bolt opening and longitudinally curved or enlarged thereat to form a passageway for the eye of a king bolt, and removable means for completing the center pin to preserve the circular character of the king bolt opening.

Bernard Bertke, Victoria, Ohio. Unloading Apparatus.—This invention is designed for use in corn cribs and various other places, being adapted to elevate a wagon body from its running gear and tilt the wagon body in an elevated position for discharging its contents into a bin or other receptacle, enabling the work incident to hoisting and tilting the wagon body to be performed by the draft animals of the wagon, whereby the latter may be easily and quickly unloaded by a boy old enough to drive a team. The apparatus is adapted to be readily transferred from one portion of a corn crib to another, so that all of the bins of corn crib of any size may be filled by the apparatus. The apparatus includes hoisting ropes having spaced portions for connection to the wagon body, a dumping rope, means for connecting the latter to the wagon body at one side thereof, and a clevis connected with the said ropes, whereby the wagon body may be elevated and then tilted through a continuous forward pulling operation.

Justus A. Browning, Ogden, Utah. Two patents.—The first patent covers a combination tool adapted to be carried in the pocket, and equipped with a nail clipper which may be folded flat and retained in its closed position through its own resiliency. The device comprises in its construction a shank with two pivoted jaws, one of the said jaws being pivotally attached to the side of the shank and the other jaw having a free end adapted to lie against the shank between the same and the pivotal connection of the first-mentioned jaw, and a spring clipping member mounted between the jaws and acting on the free member so as to cause a frictional engagement between the end of the same and the side of the shank.

The second patent relates to a car derailer designed for use in mountainous regions and various other places where there is more or less grade, and adapted to be arranged at a siding above the switch for connecting the same to the main line, and capable of preventing cars on the siding from accidentally running onto the main line. It is equipped with means for guiding derailed cars off the siding away from the main line. The derailing device comprises a derailing point located between the ends of the side rails, operating mechanism connected with the switch and with the derailing point, and a guard rail arranged to guide the wheels of a derailed car away from the main line.

Fred Bruhn, and Robert Bruhn, Paris, Tenn. Two patents.—It is the aim of the first patent to provide a plant setting and fertilizer machine, adapted to open a furrow, deposit a quantity of fertilizer therein, set plants in the furrow at the points where the fertilizer has been dropped, and finally close the furrow and pack the earth around the plants. The plant setting and fertilizing machine is equipped with a rotary plant setter comprising a pair of plant carrying members fulcrumed at an intermediate point to form inner and outer arms, exterior springs extending longitudinally of the said members and engaging

the same to hold the outer arms normally closed, means for adjustably connecting the springs for varying the tension of the same, and means located in the path of the inner arms and adapted to actuate the same to open out the arms.

The second patent relates to a fertilizer distributor designed for use in connection with the plant setting machine of the first patent, and capable of accurately dropping at regular intervals a predetermined quantity of fertilizer, and adapted to be readily adjusted to vary the quantity of fertilizer discharged at each operation.

William C. Clow, Portland, Oregon, inventor; Callest S. Dunning, Charles W. Clow and James H. Clow, Portland, Oregon, assignees. Two patents.—The invention of the first patent is designed to provide an animal trap which will automatically reset itself after it has been operated, and in which the bait will be supported in such position that it cannot be reached by the animal although in plain sight. The trap comprises a body having an open top, a bait holder supported from within the body at the open top thereof, and downwardly opening doors mounted between the sides of the body and adapted to impinge against the underside of the bait holder.

The second patent covers a jeweler's clamp, designed for setting gems in rings and equipped with means for securely holding a ring and of enabling the same to be turned and adjusted inwardly and outwardly to present the prongs or claws of a setting to a die for bending them into engagement with the stone. The device is adapted to receive and operate various forms of dies for enabling the dents to be removed from watch cases, for reshaping the rings of pendants, for removing the rollers of balance staffs and replacing them thereon, and for the performance of analogous operations where an annular holding die and a movable die are essential. The clamp includes a frame having spaced upper and lower arms, an upper spring-supported screw-actuated die mounted in the arm, a carrier slidably mounted on the lower arm, and a lower work support detachably mounted in the top of the carrier and removable therefrom, and having ring clamping means located between the top and bottom of the work support so as to remain in adjusted relation when replacing and removing the work support from the carrier.

Jesse E. H. Cannon, Americus, Ga. Window Screen.—The object of the invention is to provide a window screen equipped with a yieldable extension section at one side so as to enable the window screen to be readily applied to a window, and automatically adjust itself to the same and frictionally engage the sides thereof, whereby the screen, when raised, will remain in its adjusted position. The window screen comprises a screen frame provided with a longitudinal recess, an extension strip having a corresponding longitudinal recess and overlapping the screen frame to provide a slidable joint or connection, springs interposed between the screen frame and the extension section, and screws connecting the extension section with the screen frame and permitting the former to be moved inwardly and outwardly and arranged to draw the extension section tightly against the screen frame to form a rigid screen.

John Chevallard, Millersburg, Ohio. Lighting Attachment for Miner's Lamp.—As is well known, the clothing worn by miners is usually damp so that matches cannot be carried in the

pockets, and as the safety of miners frequently depends upon their having light, the extinguishing of the latter is frequently attended with grave danger. The object of the present invention is to provide a lighting attachment adapted to be applied to the wick spout of the lamp to maintain a plurality of matches in a dry condition, and capable of ready operation to afford instantaneous light should the light of the lamp blow out, or otherwise become extinguished. The lighting device includes a tubular match holding guide mounted on and extending longitudinally of the wick spout and having an open upper end, match igniting springs extending inwardly over the open upper end of the tubular guide and provided with jaws located at the upper end of the wick spout contiguous to the wick, and means for forcing a match upwardly from the tube and between the jaws of the springs. The igniting springs form a closed hood over the upper end of the guide for preventing the flame of the lamp from igniting a match.

Charles J. Helm and Emma Helm, Traverse City, Mich. Brick Molding Machine.—This invention has for its object to provide a molding machine, designed for molding bricks and blocks of cement and other plastic material, and equipped with means for enabling pressure to be readily applied to the material, and adapted to be easily opened for exposing the bricks or blocks so as to permit their removal. The molding machine includes a molding chamber provided in one of its walls with a plurality of openings, an oscillatory member movable toward and from the molding machine and provided with a transverse rod, a plurality of division plates connected with the said rod and movable through the said openings to divide the molding chamber into a plurality of compartments or molds, a table arranged at the bottom of the molding chamber to receive the material and movable vertically, and a plunger for actuating the table.

Berthold Jahn, New Britain, Conn. Two patents.—The first patent relates to a hand vise constructed of wrought or sheet metal to reduce the weight, and equipped with adjustable jaws pivotally connected with the members of the vise and supported by the latter, whereby the pivots will be relieved of strain. The hand vise comprises two sheet metal members having their side edges bent inwardly to form longitudinal flanges, the latter being provided at their inner ends with inter-fitting inner and outer circular ears, and the metal of each member being split adjacent to the ears to form tongues, which extend partially around the peripheries of the same, and a pivot piercing the ears.

The second patent covers a message box designed principally for office use, and equipped with means for holding a card in convenient position to have a message written on it, and capable of feeding the card bearing the message into the box and of presenting a blank for the message. The message box comprises a receptacle having an opening to expose the card, a card-receiving casing, a spring-actuated follower operable within the casing for engaging a stack of cards, feeding mechanism for removing the outermost card from the casing, and a catch carried by the follower and arranged to engage the casing for holding the follower in a retracted position against the tension of the spring to permit the casing to be filled.



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## THE NEW ADMINISTRATION.

The new administration will take charge of the affairs of government after March 4, 1913, and many changes may be expected throughout the Departments. It is assumed that a new Commissioner of Patents will be appointed. In making the appointment it is hoped that the new President will not make the mistake of some of his predecessors by appointing some one within the Patent Office. It is probably necessary to have one of the assistant commissioners appointed from the examining corps, but the head of the Patent Office, and the dominating official of that bureau, should be some one from outside the Patent Office. It is a peculiar fact that service in the government departments results in men losing their initiative and a good deal of their independence of thought and action. They become ultra-conservatives. Nothing radical is ever thought of or suggested for fear of its effect on the existing order of things. It is easier to row with the current rather than against it. Because of this, it is not wise to select as a Commissioner of Patents one who has spent his lifetime in the Patent Office. Though there are many men in the examining corps who are honest, able and efficient, we do not know one of them whom we would vote to put in as Commissioner of Patents.

In selecting a new Commissioner, we believe we voice the opinions of most of the attorneys when we say that a man should be selected who is thoroughly familiar with the practice of the Patent Office and with the abuses of such practice. No one should be selected who simply intends to boost his private practice, or work the Office for his own ends. He should be a man who has obtained a competence by long and successful practice, and who is financially able to give it up to serve the best interests of in-

ventors and advance the patent system. We believe there are a number of such men throughout the country who would be willing to take the position, for with the prestige of having held the Office, a man could easily regain his practice after he had left the Office.

The patent system is closely identified with the vast industries of the country, and the selection of a Commissioner of Patents is probably the most important office that the new President will have to fill, except the cabinet. There is hardly an industry which has not been built up by patents. Nearly every manufacturer is interested in the proper administration of the Patent Office. Inventors, though, are even more directly interested, and they should use the influence which they possess or can control to have appointed a man who will bring to that office the necessary qualities of mind and conscience, and who will perform the work in a way not to advance his own interests solely and be a mere political head of the Office. May it be said of the Patent Office that it fulfills in its daily practice the Jeffersonian maxim: "Justice to all and special privileges to none".

## THE DEFECTS OF THE TRADE-MARK PRACTICE.

### Proposed Trade-Mark Legislation.

In another portion of this issue we have printed an article from the Bulletin of the United States Trade-Mark Association of New York city, submitting the views of the Association on the existing law and practice in the Patent Office with respect to trade-marks. We have given it in full because of the excellent points made by the writer of the article in criticising the Patent Office administration of the trade-mark law. The attention of our readers is particularly called to the same. It is a matter of vital interest to any one interested in the trade-mark practice.

When the trade-mark Act of Feb. 20, 1905, was passed, it was thought that its passage would put an end to much of the strife and contention that was formerly a prominent feature of the Patent Office practice in the registration of trade-marks. The three able lawyers who gave their time and best thought to the study of the question, prior to the introduction of the bill in Congress, were keenly alive to the objections to the old practice, and endeavored in the new law to correct the same. It was thought that they had succeeded in doing so, and that the practice of trade-mark registration in the future would be robbed of many of its technicalities, but though the plans were well laid, the law has not lived up to the hopes of its friends, and the reason for this is not hard to find. By a series of decisions within and outside of the Patent Office, the law has been modified and changed to resemble something different from what its authors advocated.

As an illustration, the Patent Office

has inaugurated the practice of rejecting applications for the registration of trade-marks upon the ground of public policy not recognized by the statute. It has refused registration to applicants for the portraits of former Presidents of the United States and other distinguished personages, as tending to detract from the dignity of the high positions which they have occupied. As the writer states in his article:—

"There may be differences of opinion as to the propriety of permitting the registration of these marks. There should be no difference of opinion on the proposition that the right to determine that question rests with Congress and not with an administrative officer. The Act of 1905 having dealt with the whole subject of trade-marks after the enunciation of the ruling of the Commissioner of Patents in the year 1898, with respect to Admiral Dewey, its silence on this point should, it would seem, be construed as disapproving the latter's position."

The Act of February, 1905, contains nothing which justifies the Patent Office in rejecting an application for registration where the applicant seeks to register a mark which contains the portrait of a distinguished personage. The Patent Office has lately invoked the rule by rejecting a mark which was adopted in 1879, and registered in 1881, under the statute of that year. If Congress had deliberately put in the law a provision providing as a basis of rejection by the Patent Office, the right to exclude marks on the ground of public policy where such marks contain the portraits of former Presidents of the United States and other distinguished personages, there would have been no criticism made, but when the Patent Office proceeds to legislate on its own responsibility, and inserts in the law a provision which is not contained therein, it seems that the Patent Office has gone too far.

This disposition on the part of an administrative bureau to interpret the law so as to embody provisions not contained therein is not peculiar to the Patent Office. It prevails throughout all the government departments. It is a species of lawlessness which should not be countenanced. No executive, no court, no administrative officer has any right to read into a law provisions that are not expressly found therein. If it is desired to amend the law to include such provisions, then Congress should be appealed to for that purpose, and until Congress does act, the law should be followed strictly.

Another like instance is shown in the case of labels which are alleged to violate the provisions of the food and drug act. With every application for registration, an applicant must file five labels showing his trade-mark. In some instances an applicant for registration will print on his label the guarantee clause, and instead of printing it "Guaranteed by John Smith under the Pure Food and Drugs Act," he will print it "Guaranteed under the Pure Foods and Drugs Act," or he may in the case of a medicine

use the word "cure" instead of the word "remedy." The Supreme Court of the United States held that exaggerated statements in labels as to the curative properties of medicinal preparations did not constitute a misbranding. Congress has not yet amended the law so as to correct the alleged defect therein. Notwithstanding such decision, and the failure of Congress to act, the Patent Office continues its fatuous policy of rejecting applications for registration on the ground that the remedy is misbranded, when the labels use the word "cure" in describing its uses and properties.

It would seem that the Patent Office had enough to do to attend to its legitimate work of examining applications for registration and determining whether or not the mark was registrable. An applicant does not present his labels for registration. He presents a certain trade-mark for registration. That being the case, it has always seemed to us that it is beyond the jurisdiction of the Patent Office to consider what is contained in the labels, because the full contents of the label are not before the Examiner for consideration. In a trade-mark application, only what is shown in the drawing as the applicant's mark is considered by the Patent Office. It appears absurd for the Patent Office to waste its time in considering the make-up of the label and the printed matter thereon, rather than give its best thought and attention to the real question involved in the trade-mark application.

The most important point urged in the article is the recommendation that the administration of the trade-mark registration law should be removed from the Patent Office and placed in the hands of the Department of Commerce and Labor. On this subject the writer says:

"This illogical and harmful association of trade-marks with patents should be at once and forever ended. There is every reason why the two should be as far separated in the administration as they are distinct in substance. The grant of patents is a matter of adjustment of privileges within our boundaries and is properly intrusted to the Department of the Interior. The protection of trade-marks is entirely incidental to the regulation of commerce and vitally affects that commerce as well abroad as at home. The statutory means thereto should be administered by the Department of Commerce and Labor, which is charged with responsibility for promoting the commercial interests and activities of the nation. The registration of trade-marks should be put in the charge of a registerer of trade-marks presiding over a bureau of that name and attached to the last mentioned department. He should be a person familiar with trade-mark law and with the commercial use of trade-marks. He should have acquired his training outside the Patent Office, and not in the examination of patent applications. He should be cognizant by experience and training of the importance to our commerce of the subject-matter with which he deals and should know the bearing of his official acts and rulings upon the development of that commerce, both here and abroad. He should be a man of ability commensurate with the value of the property rights with which he is called upon to deal, and not an underpaid subordinate, diverted from the work in which he was trained."

With this recommendation we heartily concur. The change cannot



come too soon. Now that the suggestion has been made, we have wondered why it was not proposed before. There is no doubt that the administration of the trade mark law by people who have grown gray in the service of the Patent Office, and who are saturated with the technicalities of patent law, is what is responsible for the general dissatisfaction that exists on the subject. One has only to talk with a practitioner before the Patent Office to observe the general feeling of disgust with the trade-mark practice as it is interpreted today. The decisions of the Patent Office are not uniform and consistent, and are constantly changing. There is no fixed standard in the practice, nor any liberality in the consideration of applications for registration. Applications for registrations are considered in the same technical spirit as applications for patents, as if the grant of an application for registration deprived the public of substantial rights. The whole trouble lies in the fact that all of the officials in the trade mark division entered the Patent Office at an early age, fresh from technical schools, and have been advanced to their present positions without any business experience or knowledge of commercial transactions. They have no conception of the true value of a trade-mark, but consider differences between marks and anticipations of marks, in the same technical spirit that they have previously applied to citations of patents against applications for patent protection.

It is to be hoped that the United States Trade-Mark Association will stand pat on this proposition and use its wide influence in bringing about a change of the present conditions. The law should be changed, and the registration of trade marks put where it properly belongs, in the Department of Commerce and Labor. Then and only then, will the subject of trade-marks be treated, as it should be treated, on the high plane of commercial development and expansion.

#### A Speaking Electric Lamp.

That sound can be transmitted through the medium of an ordinary tungsten lamp, is the interesting discovery recently made by two German scientists. In their experiments, they accidentally connected a sensitive microphone receiver in circuit with the lamp, together with electric apparatus that made the current available for telephoning. To their surprise, they found that a whisper into the receiver could be heard distinctly when the ear was brought near the lamp. As the lamp bulb is a vacuum, it could not be ordinary sound waves produced through temperature variations and consequent vibrations in the filament; but the scientists think that the vibrations of the filament were transmitted to the thin glass walls of the bulb, and that these, in turn, produced the sound waves received by the ear.

#### THE PARCELS POST AND ITS EFFECT IN STIMULATING INVENTION AND TRADE.

The introduction of the automobile brought in a flood of new inventions to the Patent Office; aviation added its quota to the increasing number of applications, and now it is expected that the parcels post will be an equally fruitful source of invention. The Post Office Department is on the threshold of a new enterprise which will grow with each year. It was so with the rural free delivery and the postal savings bank, and it will be equally true with respect to the parcels post. The parcels post is as yet in its infancy; the rates are too high, and the limit of weight too low. Instead of eleven pounds, the limit should not have been less than twenty five pounds. It may be necessary to continue the zone system for a time, but eventually the rate should be adopted.

We read in the newspapers of a man sending a pitchfork by mail, a woman in the country sending the daily lunch to her son in the city, and we no longer regard as out of the ordinary the reception of eggs by the mail. This has been demonstrated to be perfectly feasible. One shipment recently made attracted a great deal of attention. The Postmaster General of Washington received a carton of eggs from Oklahoma City, a distance of nearly 2500 miles. Although the package had been subjected to more or less rough treatment, not a single egg shell was cracked. This was before the introduction of the parcels post. Now, a package containing eggs must be marked "eggs," but the package we refer to was marked "merchandise," and received no more care in handling than any package of unbreakable material. The success in this shipment was due to the peculiar construction of the shipping package which we understand is a patented device.

That inventors will be equal to the emergency, and devise various forms of containers or shipping cases for shipping different articles of merchandise we have no doubt. If perishable and breakable articles are to be shipped through the mails to any extent, novel forms of containers must be provided, and in order to allow the cartons or shipping cases to be used over and over again, the law should be amended so as to give a lower rate to the reshipment of a crate or shipping case in a knock down or flat position.

We recently received eight pounds of sausage from a place in Virginia, which cost twenty-one cents to reach its destination. The place is about fifty miles from Washington. The rate should be reduced so that the package may not cost more than ten cents, and we can see no reason why, in a distance of fifty miles, ten cents would not be sufficient. Then the connection between the producer and the ultimate consumer would be made more direct, and the high cost of living in many cases be solved. The trouble has always been that the wholesaler or the commission man and the retailer, received the great differ-

ence in the price between what the farmer received for his goods and what the consumer had to pay.

In order, however, that the service may be more advantageously used, improvements must be made in shipping packages and the tying of the same, as well as wrapping, addressing, &c. Everyone should co-operate to make the service as successful as possible, for it means much to the whole country to save the millions of dollars which have heretofore gone into the coffers of the express companies. We hope the time may come when the United States will take over the whole express business, for that is what the parcels post eventually means.

#### New Life Preserver.

A new life preserver to aid in rescue work in case of a shipwreck at night, has been successfully tested by the German navy. The apparatus, which weighs only a trifle over five pounds, consists of two swimming cushions bound together by straps. The cushions lie upon the breast and back. The apparatus is provided with a small lamp fed by a battery. The lamp is fastened around the head with a band worn on the forehead, so that in case of accident at night the position of the person in the water can be seen some distance off. The small lamp burns three or four hours, and with the aid of a reflector throws a light several hundred yards. The bolt can be buckled around the body in five seconds, and the lamp begins to burn as soon as the buckles are fastened.

#### Fertilizer from the Air.

Transmutation of air into fertilizer, the dream of the twentieth century alchemist, is now an accomplished daily miracle in South Carolina. At a hydroelectric power station here, the magic of modern science, working with the "base" elements of the atmosphere in their commercially valueless state, turns in a cycle of profit as golden as the process by which the first alchemist tried to change metals. The modern alchemist uses electricity as his philosopher's stone. His base elements are the nitrogen of the air, and the limestone of the hills; and the product is nitrate of lime, one of the most valuable of fertilizers.

An article in the *Technical World Magazine* describes the process. Where a surfeit of undeveloped land is always just beyond the border of cultivation, there is no thought of fertilization. Virgin soil is supplied with a surplus of plant food that will support crops for a long time. But when failing crops show an overdrawn account, the necessity of returning to the soil the element removed from it by a vegetable growth, is obvious. Business fertilizers vary according to the crop in which the land is to be planted, but certain well defined chemical elements are recognized as essential, and the most important is nitrogen, which exists in the atmosphere as an odorless, tasteless, invisible gas. Four-fifths of the air is composed of it, but in this state it cannot be assimilated by plants. So compounds of nitrogen, or mineral bodies in which nitrogen is in combination with other chemical elements, furnish

the chief source of fertilizers. The world's supply of these fertilizers will probably be exhausted within the next twenty years, and scientists have for a long time been trying to find a substitute. The atmosphere was the best source, and it has been found possible to energize the inert nitrogen contained therein by means of the electric arc. A long current of air is forced by the powerful blower into a small chamber containing carbon electrodes. The air current here plays against an electric arc between the electrodes, which, on account of the excessively high voltage employed, is several feet long. In the intense heat of the electric arc, a heat which is frequently as high as 3500 degrees C., a small proportion of the nitrogen and oxygen present combine to form oxides of nitrogen. The contact with the same is but momentary. The current sweeps air and oxides on through a series of absorption tanks, and finally through an absorption tower similar to that employed in the manufacture of sulphuric acid. The nitrogen oxides dissolve in the water, forming nitric acid, the air bubbling through and escaping. The further stages of the process are concerned simply with concentrating the acid, either by further absorption or by evaporation by heat, and treating the liquid acid with ordinary limestone nitrate of lime resulting from the chemical reaction that ensues.

The most serious drawback to the commercial success of the process has been the tremendous disproportion between the amount of electrical energy employed, and the amount of acid fertilizer procured. It is only where the electric power is very cheap that the process is applicable. At the station in South Carolina, there is a surplus of power from the local supply, and also a supply of limestone in the neighboring hills. The plant is being operated on a 24-hour schedule, and it is so successful that plans are being made for enlarging it to five or six times its present capacity.

#### Germ to Kill Flies.

To employ a germ to kill the fly that carries so many germs, is another way of fighting the devil with fire. Fly paper, traps, poison, the swatter, will soon be relegated to the waste paper basket, if a fly parasite recently discovered proves as fatal as it is hoped. Two English physicians have found a tiny fungus so deadly to flies, that if one of these insects is inoculated and then set free, the disease will spread as an epidemic so rapidly that the pests will die by the thousands. The germ is so small that when planted in gelatin, the colony is invisible until billions of descendants have developed from the mother mold. This requires only a few hours. The multitude then is only about the size of a pin head. It is enough to touch this colony with the point of a needle and scratch a few live flies with the same and turn them loose. They will cause a contagious malady that will act as a veritable plague to their species. The microbic mold is found to be entirely harmless to human beings and domestic animals. It is easy to handle, and is dangerous only to the fly. There is poetic justice in the thought that these winged pests, that have done so much to spread disease among human beings by the transportation of germs, should themselves perish by a similar agency. Government bacteriologists have ordered test tubes of the fungus, and it is hoped that in the campaign for extermination of the fly, it will prove as successful as predicted.



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 Concentrator, Pan-motion belt ..... K. Sonn  
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 Draw-bar ..... C. A. Myers  
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Hot-water plate L. Wojdtkow  
Hub for vehicle wheels, Resilient E. Yoder  
Hub, metal G. E. Babcock  
Hub, Vehicle-wheel spring G. H. Herrick  
Hydraulic intensifier, Steam T. E. Holmes  
Ice-cream cone holder J. Renner  
Ice-cream dipper J. Geier  
Ice-creper R. Graff  
Ice, Forming M. C. J. Bannister  
Igniting device A. Philippsen  
Incinerating furnace P. F. Dundon  
Inking pad E. Steiger  
Insole support F. Kornder  
Internal-combustion engine H. W. Bolens  
Internal-combustion engine J. E. Gilson  
Internal-combustion engine G. E. Bowen  
Jack L. Willour  
Jack for raising concrete wall forms A. E. Jacobson  
Jacquard-card-punching machine J. A. Groebli  
Jar-cover straightener B. S. Knutson  
Jewelry J. W. Mayer  
Journal-box for rotary blowers O. Banner  
Keg, Metal G. E. Mittinger, Jr.  
Knocking machine F. Aeschbach  
Knitting machine, Circular E. E. Kilbourn  
Knitting-machine splicing mechanism W. N. Taggart  
Label holder J. H. Stoddard  
Ladder bracket W. Walker  
Lamp bracket B. G. Gilbough  
Lamp burner C. E. Wirth  
Lamp, Double-end electric B. Seftecase  
Lamp guard F. Overbaghet al.  
Lamp, Oil C. E. Godley  
Lamps, &c., Socket for E. C. Everett  
Lamps, Wire guard for electric C. H. Hunsberger  
Land-packer, Subsurface F. Garrard  
Lantern W. R. Yarloff et al.  
Lantern, Tubular C. J. Betts  
Lantern, Tubular F. Dietz  
Latch, Gate E. J. Thompson  
Latch, Gate H. D. Moise  
Latch, Sliding-door C. Eytalis  
Lathe R. K. Le Blond et al.  
Lathe-dog, Safety F. C. Billings  
Lathe gearing R. K. Le Blond et al.  
Leg, Artificial V. Lazzara  
Leg, Artificial E. A. Bonar  
Linear-dimension gage A. Maul  
Linotype machine (Reissue) J. R. Rogers  
Loading and unloading device (Reissue) T. Suchla  
Locking device for receptacles C. G. H. W. Ohlstrom et al.  
Locomotive G. J. Hartz  
Loom beam F. Mossberg  
Lumber-piling machine W. Larson  
Mail-bag holder C. E. Conkling  
Match machine M. San  
Mechanical movement H. A. Armstrong  
Megaphone, Knockdown F. L. Rose  
Metal-bar-straightening apparatus I. L. Hughes  
Metal from ores, Machine for separating C. Ross  
Metal lath, Cutter for ribbed R. W. Adams et al.  
Metal plates, Lithographing F. Niemeyer  
Metal-shaping machine C. H. Riege  
Metallic file F. L. Magee  
Mills, Sifting arrangement for flour O. Marquardt  
Mop head and wringer, Combined I. C. Imboden  
Mortising machine C. Nelson  
Mosquito trap M. Graf  
Motor-controlling means, Electric J. T. Watson  
Motor-driven implement L. Horn  
Mower, Lawn A. C. Bond  
Music indicator C. H. Hartman  
Musical instruments, Playing attachment for stringed H. C. Marx  
Nasal guard J. W. Reddy  
Nipple F. H. Bowly  
Nozzle appliance J. F. Moran et al.  
Nut, Sheet-metal thumb H. F. Larava  
Oil burner J. B. Wood et al.  
Oil engine J. W. Cross  
Oiling machine, Road W. F. Davis  
Open-hearth furnace, Air-cooled H. Knott  
Optical testing instrument A. F. Shore  
Orchard heater C. Stollberg  
Ore crusher (2 pats.) E. A. Wall  
Orthodontia appliance M. N. Federspiel  
Ozonizer R. D. Small et al.  
Package-delivery apparatus C. D. Dewey  
Packing G. E. Wriedt  
Packing for journal-boxes R. J. Evans  
Packing rings, Device for finishing piston J. A. Steben  
Packing, Self-setting A. R. Klingloff  
Pail cover, Milk W. A. Metzger  
Pail, Milk A. Martin et al.  
Painting and colored weatherproof architectural ornament, Fresco E. Borner  
Paper clip J. M. Reams  
Paper-hanging machine E. Brown  
Paving-block machine H. Devlin et al.  
Pen-point releaser J. B. Sills et al.  
Pencil sharpener W. M. McKinney  
Pendant and locket, Combination J. F. Killion  
Perch A. Cox  
Piano-player, Pneumatic C. Freberg  
Picker-machine-locking device T. H. Walsh  
Pile P. Colom  
Pin guard I. C. Woodward  
Pipe-attaching means for register, ventilators, &c. A. Gerdum  
Pipe closure, Air-suction W. S. Sutton  
Pipe connection, System of train A. L. Greenlaw  
Pipe roll A. J. Beaton  
Pit cages, Railing or guard for H. R. Bowers  
Planter attachment, Seed R. A. Shaver  
Planter, Corn M. H. Wilson  
Flow, Adjustable reversible right and left hand A. Servel  
Plow, Gang L. A. Hubert  
Plow-points, Automatic device for attaching and detaching C. E. Logan et al.  
Plow, Seed-opening W. S. Johnson  
Pneumatic-dispatch-tube apparatus (3 pats.) E. A. Fordyce  
Post E. A. Fordyce  
Post W. T. Hicks  
Post-mold W. T. Hicks  
Posts, Wire-support for W. T. Hicks  
Pots and other utensils, Instrument for lifting hot A. Altmann  
Powder dispenser, Toilet E. Oldenbusch  
Power and regulating speed, Apparatus for transmitting H. D. Williams  
Presses, Safety device for O. J. Seufftlen  
Pressing and drying strips of fabric and cutting them into lengths, Machine for E. E. Otto  
Pressure gage, Recording low C. J. Manning  
Primary battery C. B. Schoenmehl  
Printing mechanism H. C. Osborn  
Printing plates, Making C. W. Lutterman  
Printing press sheet-feeding mechanism C. M. Kneppler  
Profile and fitting the same R. Pomplil  
Pulley-brake for motor-controlled apparatus M. Taigman  
Pulling-over machine F. Brothers  
Pulp-straining machine J. White et al.  
Pump for explosive gas J. C. Fountain  
Pumps, turbines, blowers, and the like, Automatic balancing device for rotors of A. Griessmann et al.  
Punch press J. B. Cox  
Purse W. Gaeckle  
Quartz mill H. S. Rankin  
Radiator J. H. Morrow  
Rail joint S. Polusi  
Railway and the like, Suspension H. Muller  
Railway, Cable W. H. Colburn  
Railway crossing F. McConeghy  
Railway, Electric W. B. Purvis et al.  
Railway frog H. G. Elfborg  
Railway gates, Automatic operating means for F. A. Baushman  
Railway tie and rail fastener F. C. Seaman  
Railway tie, Metallic B. S. Rupp  
Railway track construction W. Whigham  
Pammer R. H. Staley  
Razor G. O. Lift  
Razor A. Bemmerer  
Razor J. A. Ohlsson  
Razor, Safety H. H. Bean  
Razor, Safety L. H. Cross et al.  
Reading glass F. E. Peterson  
Receptacle stopper L. Wojdtkow  
Reciprocating engine and turbine plant, Combined W. Schmidt  
Recording device C. B. Wattles  
Resilient wheel A. F. Hawksley  
Resilient wheel F. E. Van Derwerken  
Ridge-roll-forming die T. C. Belding et al.  
Rim, Demountable E. L. Gold et al.  
Riveting machine E. J. Pennypacker  
Rock and boulder plunger A. G. Seberg  
Rock-drilling machine P. Lange  
Rod-bending machine G. W. Foraker  
Rolling machine, Metal J. K. Hauberg  
Rolling mill, Roundabout B. Versen  
Roof carline D. M. Knox  
Roof construction J. C. White  
Roofing, Composite (2 pats.) H. Gillett  
Roofing material W. J. Moeller  
Rotary H. R. Decker  
Rotary engine H. Hermanns  
Rubber-containing product, Producing A. E. Merritt  
Rubber heel F. W. Kremer  
Rule, Lumber H. A. Paquette  
Sad iron L. Rosenbann  
Saw dresser L. McLean et al.  
Saw horse, Adjustable W. H. Phillips  
Saw machine, Drag C. C. Hall  
Saw swage A. E. Proctor  
Saw-tooth centering indicator J. E. Hibbert et al.  
Scaffold A. F. Walther  
Scale, Sack C. Nagel  
Scouring machine C. H. Scott  
Scraper A. C. Banke  
Screw machine, Multiple-spindle C. M. Spencer  
Scribbling machine J. Swiontek  
Seal lock A. Woolen  
Sealing machine, Envelop C. H. Davis  
Seed-dropping mechanism C. H. Nesvant  
Sewing-machine attachment E. M. Clark et al.  
Sewing-machine edge guide W. H. Stedman  
Sewing-machine presser-foot, Automatic H. Schuler  
Sewing-machine roller H. M. Greist et al.  
Shade, Adjustable window D. H. Harnly  
Shade-streak hack R. L. Ivey  
Sharpening device for bush-hammers C. K. George et al.  
Sheet-conveying apparatus W. B. Wait  
Sheet-metal receptacle E. W. Carnes  
Shelving, Shifting extensible support for B. T. B. Hyde  
Shield, Reversible breath R. Sideman  
Shirt waist A. Greenbaum  
Shock-absorber R. Pope  
Shock-absorbing spring N. W. Kaunitz  
Shoe-cleaner N. Dupuis  
Shoe, Contact F. A. Stuhlfeiler  
Show case W. H. Cobb  
Shutter releaser C. H. Stempel  
Sign and bulletin board, Combined C. H. Coleman  
Signal semaphore-arm, Railway J. W. Fenton  
Skylight W. H. Branzell  
Sleigh runner, Motor R. S. Haight  
Slicing machine A. R. Luschka  
Snap-hook J. B. Baxter  
Sole, Shoe C. S. Swaim  
Spar-base E. A. and J. F. Gaskill  
Spark-arrester W. Crawford  
Spark plug E. F. Hopkins  
Sparkling plug F. W. Erickson  
Spectacles F. Hamilton  
Spinning machines, Yarn condenser and polisher for cordage O. Nedvidek  
Spoke-tenoning machine C. Bergstrom  
Spoon F. Emmenegger  
Spout for containers, Detachable J. Morgan et al.  
Spring wheel G. F. Barnes et al.  
Stage-lighting device R. Naujoks  
Stamp, Hand H. Neumann et al.  
Steam table and dish warmer F. Herzog  
Steel, Treating B. C. Calderwood  
Steering indicator F. B. Mills  
Sterilization of milk or other liquids, Apparatus for the T. G. Mollinger  
Stethoscope, hearing-trumpet, ear-trumpet, &c. O. Bolte  
Stirring device R. O. Stutsman  
Stocking E. C. Parsons  
Stoker, Locomotive F. H. Strouse  
Stove attachment G. D. Grant  
Stove, Downdraft H. E. Atteberry  
Strainer for down-spouts, Catch L. Thiem  
Support, Folding B. Fye  
Surgical bandage E. M. Pond  
Suspension or chateleine pin, Safety C. A. Holbrook  
Switch mechanism, Electric E. Edwards et al.  
Switch-operating mechanism A. W. Rollings et al.  
Syringe J. Payne  
Syringes, Attachment for garden and other J. R. Bullen  
Telegraph and telephone system, Combined C. L. Bopp  
Telephone-exchange system W. W. Dean  
Telephone selective apparatus, Party D. W. Kneisly  
Telephone signaling apparatus F. D. Powell  
Telephone system (2 pats.) H. P. Clausen  
Telephone-transmitter sanitary shield R. W. Bogart, Jr.  
Telephone transmitter, Wireless J. P. McCarty et al.  
Telephony M. L. Johnson  
Textile machinery, Manufacture of covers for rollers used in R. and W. Warwick et al.  
Tie plate W. Whigham  
Tie plates, Manufacturing E. H. Bell  
Tin-foil and the resulting product, Coating A. J. Howell  
Tire, Cushion H. A. Fry et al.  
Tire protector S. Storn  
Tire signal G. T. Hackley  
Tire, Wheel F. Householder  
Tie plate W. W. Dean  
Tobacco bath H. S.  
Tobacco pouch G. K. Gorman  
Tobacco-stem, Machine for G. F. I.  
Tongue, Stomach W. J. I.  
Tongue, Vehicle J. I.  
Tool handle Z. I.  
Torch, Cutting W. C. B.  
Torpedo stopping device S. I.  
Toy, Trick J. M.  
Traction engine J. M. S.  
Train-coiling apparatus M.  
Trolley A. F. B.  
Truck, Car J. C. B.  
Tube cleaner W. S.  
Tubecorrugating apparatus J. I.  
Turpentine receptacle R. D.  
Type writer H. Moya  
Type-writers, Calculating mechanism for H. Sugden et al.  
Type-writing machine E. B. H.  
Umbrella hanger H. D. Hassard  
Umbrella, Telescopic W. J. Schlafer  
Universal joint C. C. H. E. and M. E. Blood  
Vacuum apparatus A. W.  
Vacuum cleaners, Dust separator and moving mechanism for T. Wiedemann et al.  
Valve C. L. Bailey  
Valve bags, Machine for filling A. M. Bates  
Valve for steam engines, Distribution J. Stumpf  
Valve for water heaters, Safety H. Eisenach et al.  
Valve gear G. T. Signer  
Valve-lifting device R. C. I. Hallgren  
Valve, Radiator J. A. Bonish  
Vehicle, Collecting S. C. Cox  
Vehicle curtain T. C. Merz  
Vehicle, Motor R. J. Nichols  
Vehicle spring P. L. Rookledge et al.  
Vehicles, Attachable runner for J. H. Kuehner  
Vehicles, Fluid-pressure-controlling system for motor A. G. McGregor  
Velocipede motor attachment A. W. Wall  
Vending apparatus T. Stocker  
Vending device, Liquid D. Kepford  
Vending machine (2 pats.) C. A. Melchert  
Vending machine, Coin-controlled A. Amadeo  
Vending machines, Coin-controlling mechanism for C. A. Dawes  
Ventilator J. H. Otten  
Vessel-protecting device A. A. Quinn  
Vessels, Permanently applying end closures to G. W. Beadle  
Voring machine J. H. McElroy  
Vulcanizer B. R. Barden  
Wagon, Lumber A. Barringer  
Wallet F. E. Housh  
Watch, Stem-winding H. W. Matalene  
Water gage B. Zindel  
Water heater H. O. Allen  
Water-heater construction F. L. O. Wadsworth  
Water motor J. Bain  
Water-sterilizing apparatus S. Held  
Water-tube boiler H. E. Boyrie  
Water-tube boiler D. S. Jacobus  
Wave-energy motor (2 pats.) C. M. Rhodes  
Weighing and filling machine G. Hoepner  
Weighing device, Automatic T. Zollner  
Well-casing joint A. G. Felker  
Well top W. H. Kimball  
Wheel F. J. Singler  
Winding machine R. Burt  
Winding-machinery-controlling device J. B. Gott  
Window screen, Knockdown B. S. Cleveland  
Wire grip W. C. Shannon  
Wire straightener G. S. McLean  
Wire straightening and cutting-off machine F. B. Shuster  
Wire stretcher G. F. Swortfeger  
Wood and making same, Preserved C. Ellis  
Wrapper, Dry-goods A. Lindgren  
Wrench W. Berndt  
Wrench T. A. Lauseha  
Wrench D. F. Wack, Jr.  
Wrench H. Davidson  
Yeast-wort and producing the same O. W. Willeox

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## MECHANICAL PATENTS.

- Acid, Ethyl ester of 8-methoxy-2-phenyl-quinolin-4-carboxylic (2 pats.) M. Dohrn  
Acid, Methyl ester of 6-methyl-2-phenylquinolin-4-carboxylic M. Dohrn  
Acid, Methyl ester of 6-methyl-2-phenylquinolin-4-carboxylic A. Thiele  
Adding machine E. S. Church  
Advertising attachment for theatrical curtains, Rotary J. C. Taylor  
Advertising device W. M. Turner  
Advertising device B. Cohen  
Advertising device M. E. Torrey  
Advertising display mechanism A. L. Runyan  
Aeroplane T. C. Starr  
Aeroplane L. Bleriot  
Aeroplane propelling and lifting device P. Gilbert  
Agricultural tractors, Attachment to J. P. Steward  
Air-brake appliance W. A. Skinner et al.  
Air brakes, Emergency operating device for G. L. Collins  
Air craft C. Spilka  
Air lift, Automatic chemical A. Long  
Air machine, Safety balanced G. M. Absalom  
Airship E. M. Rals  
Aluminium or its alloys for the deposition of metals thereon, Treatment of surfaces of Q. Marino  
Ammonia from distillation gases, Recovery of W. Mueller  
Ammunition wagon K. Voller  
Ammunition wagon, Tilting W. Mayer



- Antiskidding device.....W. H. Putnam  
Arch support.....W. R. Lee  
Armor plating, Manufacture of.....E. Fischer  
Artillery vehicle.....W. Mayer  
Artillery vehicles, Limber coupling for.....  
Ash receptacle for smokers.....R. J. Tiper  
Attaching device.....W. H. Jobe  
Automatic safety burner.....F. Spletstosser  
Automatic switch.....W. Griebel et al.  
Automobile control.....I. F. Baker  
Automobile top.....W. T. Oder  
Automobiles, Means for attaching air pumps to.....E. W. Fishburn  
Autotruck, Tilting.....H. Mayer  
Axle spindle.....J. Young et al.  
Bag.....P. J. Goldsmith  
Bag holder.....F. C. Storley  
Bag holder.....P. M. Gundersen  
Bait, Composition fish.....O. H. Mack et al.  
Baling press.....Z. S. Randleman  
Ball-marking machine, Golf.....W. B. Supplee  
Barrel-support.....J. W. and C. V. Dyer  
Barrels and kegs, Follower for.....  
Battery-charge indication.....A. T. Henderson  
Bearing, Ball.....W. E. Holland  
Bearing, Ball.....G. O'Loughlin  
Bearing surfaces, Forming expanded.....  
Bearings, Cage-ring for ball.....E. Sachs  
Bed attachment.....J. G. Laycock  
Bed lock.....W. B. Swindell  
Bed pan.....A. Hondard  
Beverages, Clarifying.....H. Zwick  
Bicycle supplemental seat attachment.....  
Boiler and stove, Combination.....S. C. Swindler  
Boilers, &c., Alarm water column for.....  
Boilers, Apparatus for removing scale and the like from.....H. Pontani  
Bookbinder.....R. J. Nicholson  
Boot and shoe cleaner.....J. Connor  
Bottle caps or capsules, Making and applying.....A. J. L. Lassen  
Bottle, Hot-water.....A. S. Campbell  
Bottling liquids under pressure, Machine for.....J. K. Lammack  
Braiding carrier.....P. Butler  
Brake beam.....H. Ziemss, Jr.  
Brake connector, Coaster.....E. Sachs  
Brake fastener, Coaster.....E. Sachs  
Brake-head.....F. R. Cornwall  
Brake shoe.....J. J. Kinzer  
Brake-shoe controller.....W. G. Price  
Brush.....S. A. Brockway  
Brush, Air.....T. A. DeVilbiss  
Brush-making machinery.....S. G. Roseman  
Brush, Tooth.....A. L. Holtzman  
Bucket, Dinner.....H. P. Beck  
Buckle.....G. H. Perrine  
Burner.....C. A. Yates  
Buttons and badges, Attaching means for.....J. L. Lynch  
Cabinet, Desk.....E. W. Grogan  
Cable-terminal structure.....S. P. Grace  
Calculating apparatus for type-writers, &c.....H. L. Pitman  
Camera multiplying back.....W. F. Folmer  
Camera-shutter-operating device.....B. Jannszewski  
Can attachment, Tobacco.....O. Bjelland  
Can construction.....A. E. Ostrander  
Car coupling.....L. N. Singin  
Car coupling.....O. C. Billman  
Car coupling, Automatic.....H. F. Woernley  
Car-coupling device.....J. E. Hinder  
Car door.....A. E. Rupp  
Car door, Grain.....J. Morris et al.  
Car-door mechanism.....W. Gradick, Sr.  
Car-dumping mechanism, Railway.....E. Farago  
Car fender.....A. J. Wisner  
Car grain-door, Box.....J. S. Bender  
Car, Logging.....C. W. Russell  
Car, Passenger.....W. Voss  
Car underframe.....R. E. Frame et al.  
Cars, Foldable shoe for third-rail electric.....L. A. McConbric et al.  
Carburetor.....T. E. Bourne  
Carburetor.....H. C. Roth  
Card, Folding.....F. D. Chase, Jr.  
Carpet sweeper.....S. A. Davis  
Carton blanks, Machine for paraffining.....M. L. Twonley  
Casing elevator.....B. C. Williams  
Casing head.....F. J. Moser  
Casting spear, Adjustable.....D. G. Monsees  
Casting machine, Die.....L. M. Parkhurst  
Catheter, Irrigating.....C. A. Rudla  
Cattle-guard.....J. Mohr et al.  
Cellulose, Manufacture of threads, filaments, strips, or films of.....S. S. Napper  
Cement and making same, Tile roofing.....W. J. Moeller  
Chair.....O. L. Ostendorf  
Chandelier and fixture.....W. H. Fisher  
Cheese press.....M. Rohde, Jr.  
Cigar container.....W. D. Sharpe  
Cigar cutter.....C. A. Blackhall  
Circuit breaker.....W. E. Haust  
Cleaning machine.....C. B. Howe  
Clock, Universal.....M. Luperini  
Clock, Watchman's.....G. F. Baldry  
Cloth-board holder.....G. W. Dinsmore  
Clothes drier.....W. P. Tarrant  
Clothes-drier attachment for boilers.....P. Walther  
Clothes-line hanger.....M. J. Greubel  
Clothes-line support.....W. Whitley  
Clutch.....F. S. Ellett  
Clutch-actuating mechanism.....P. Daimler  
Clutch, Fluid-actuated.....F. C. Mott  
Clutch mechanism for sheet-conveying machines, Slow-down.....T. C. Dexter et al.  
Cock, Ball.....J. L. Hague  
Coin-controlled mechanism.....G. L. Reichhelm  
Coin receptacle.....G. R. Perry  
Collapsible case.....O. Kling  
Collapsible tube.....C. H. Stuart  
Collars, Manufacture of fold.....J. McKay  
Communtators, Making and mounting.....F. P. Huyek  
Concentrator, Dry.....J. Wagner  
Concrete construction (2 pats.).....J. E. Conzelman  
Concrete insert.....J. Kennedy  
Concrete mixer.....E. F. Bolte  
Concrete railway tie, Reinforced.....B. W. Pinney  
Concrete structure, Reinforced.....F. D. Huntington  
Concrete tie, Hollow reinforced.....H. R. Leonard  
Confection box.....W. A. Cardy  
Copy holder.....H. J. Richendrfer et al.  
Corn, Process of separating the germ or germ and hull from, and the product of such process.....H. Wulkan  
Cornets and the like, Attachment for.....J. J. Greenwood  
Cotton chopper.....S. E. Parsley  
Couch, Box.....E. Quarles  
Coupling.....L. A. Scribner  
Couplings, Machine for tapping.....C. M. Spencer  
Crank pins on engine shafts, Device for turning.....L. W. Witry  
Crate, Folding.....J. Wahl  
Crochet machine.....J. M. Merrow  
Crusher.....O. C. Beach  
Crusher.....F. O. Whiting  
Crushing machine, Roll.....T. L. and T. J. Sturtevant  
Culinary article.....O. D. Brossia  
Cultivator and planter, Combined.....W. C. Dunlap  
Cultivator attachment.....A. H. Davis  
Cultivator attachment, Disk.....C. H. Gardiner  
Cup-carrying and collecting apparatus, Drinking.....L. W. Farmer  
Current motor.....S. Roney  
Cnrycomb, Self-cleaning.....R. Evans  
Curtain fastener.....W. Jamrog  
Dental articulator.....T. H. Montague  
Diamond holder.....F. W. Bauscher  
Diaphragm, Flexible metallic.....W. B. Hodge  
Dish washer.....W. S. Miller  
Dispensing apparatus.....R. J. Wightman  
Door, Grain.....W. Gradick, Sr.  
Door hanger, Ball-bearing.....H. M. Haun  
Door holder.....P. Denitz et al.  
Door spring.....B. Wilder  
Dough raiser.....M. M. Billingsley  
Drainer, Dish.....C. A. Holbert  
Drawer slide.....M. Cossey  
Drawing instrument.....S. C. and J. F. Lary  
Drill jig.....A. Swainson-Brooke  
Drill presses, Key-seat-cutting attachment for.....G. Berghansen  
Drilling machine.....P. P. Au Buchon  
Drinking fountain.....A. P. Olson  
Drum player.....F. O. Anderson  
Duplicating machine.....A. H. Bates  
Dust catcher.....J. A. Dyblie  
Dyestuff, Azo.....K. Schirmacher  
Electric conductors, Switch and connecting device for.....N. D. Levin  
Electric device, Vapor.....E. Thomson  
Electric horn.....M. E. Hepburn  
Electric ignition device.....T. Hubert  
Electric machine, Dynamo.....R. Lundell  
Electric switch.....A. G. Pitz Gerald  
Electric switch.....A. H. Nero  
Electric switch, Quick-action.....J. A. Cole  
Electric time-switch.....O. P. Noisom et al.  
Electrical contact.....H. F. Stratton  
Electrocuting device.....J. Balint  
Elevator and tank construction.....J. E. Conzelman  
Embroidering machine.....R. Zahn  
Engine cylinder, Gas.....E. T. Adams  
Engine-starting device, Explosive.....W. L. McKissick  
Engine-starting mechanism, Explosive.....L. C. Van Riper et al.  
Engines, Cylinder for double-acting piston.....C. Grunwald  
Engines, Ignition apparatus for combustion.....M. A. Thiel  
Exercising apparatus (controller for vertical adjustment).....M. B. Reach  
Eyeglasses, Instrument for holding.....I. Brooke  
Fastening-inserting machine.....E. L. MacKenzie  
Fastening-inserting machine.....G. Goddu  
Feeder, Poultry.....G. K. Gillette  
Fence and wall construction.....I. E. Conzelman  
Fence post.....H. P. White  
Fertilizer, Making.....S. M. Doolittle  
Filing cabinet.....J. M. Mnsil  
Filing cabinet.....F. W. Hges  
Filing cabinet, Combination.....W. O. Mueller et al.  
Filter.....F. H. Sauer  
Firearms, Light attachment for.....C. A. Lewis  
Fireproof door and like structure.....W. E. C. Liebert  
Fishing apparatus.....G. Pluschke  
Food gates, Detachable panel structure for.....E. S. Sheppard  
Floor polisher or the like.....G. H. Bourne  
Floor, Portable sectional.....C. and J. H. Trammill  
Flushing tank.....H. S. Hawks  
Flying machine.....E. H. Kelsey  
Flying machine.....M. Newgold  
Flying machine.....S. V. James  
Flying-machine attachment.....C. M. Gould  
Folding and wrapping machine.....S. C. Cox  
Friction coupling.....H. F. Wallmann  
Fruit drier.....E. F. Tucker  
Fruit picker.....S. E. Price  
Funnel.....G. F. Montgomery  
Funnel holder.....J. S. Shope et al.  
Furnace grate.....M. E. Hansell  
Furnace regulator.....H. F. Quikel  
Fuse.....J. H. Alspach  
Garment fitter.....P. E. Sobotker et al.  
Garment former.....J. Manowitz  
Gas burner (11 pats.).....E. G. Van Zandt  
Gas burner, Incandescent.....J. Visseaux  
Gas cut-off.....F. C. Gillman  
Gas producers and other furnaces, Charging device for.....H. Bittman  
Gate.....A. P. Everest  
Gearing.....C. Alexander et al.  
Gearing.....C. D. Severance  
Gearing.....E. Teeter  
Gearing.....H. A. Conger  
Gearing for variable speeds, Planet.....F. Winkler  
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Gearing, Transmission.....E. J. Swedlund  
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Glass plates for store fronts, &c., Device for securing together.....M. S. Crane  
Globes or reflectors, Holder for.....E. F. Mould  
Glove, Baseball.....W. P. Whitley  
Governor, Steam-engine.....J. C. Gaskill  
Grain scourer.....D. W. Durrett  
Grate.....F. Geron  
Grate, Gas.....E. G. Van Zandt  
Grating, Reticulated wrought-iron.....G. A. Keller  
Grinding machine.....O. H. H. Zeitz  
Grindstones, Composition for making.....R. I. Dowd  
Gun, Automatic.....K. Heinemann  
Hame fastenings, Coupling member for.....G. G. Greene  
Hammer.....E. O. Hubbard  
Hammer, Power.....S. P. Harvey  
Harrow, Rotary.....P. A. Blomberg  
Harvester attachment, Corn.....J. A. Reynolds  
Harvesting machine reel-support.....J. F. Steward  
Hats and garments, Device for supporting.....C. J. Quinlan  
Hay press.....J. Dain  
Hay retainer.....W. Minniear  
Hay sling.....A. J. Roberts  
Heater.....W. R. Jeavons  
Heater.....M. Kelly  
Heating system (4 pats.).....A. G. Paul  
Heating system.....A. G. Paul et al.  
Hides and skins, Machine for stretching tawed and chrome-tanned.....E. Simcon  
Hoisting hooks, Attaching.....C. D. Morley  
Hoisting pieces of furniture, &c., through windows of upper stories of buildings, Apparatus for.....J. Dorin  
Hook and eye.....T. A. O'Donnell et al.  
Horse-controlling device.....F. S. McManigal  
Horseshoe.....G. F. Liden  
Hose and other joints, Clip or socket for.....A. H. G. Girling  
Hose supporter.....N. F. Schafuss  
Hub.....A. L. Lewis  
Hub.....J. D. Jones  
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Hydrocarbons, Making chlorinated.....O. Graul  
Hydrogen peroxid, Making solid stable compounds containing.....V. Stanek  
Hypodermic-needle case.....J. Payne  
Ice-cream-cone filler.....J. W. Murray  
Ice creeper.....C. Kirton et al.  
Impressions or inscriptions, Machine for simultaneously producing a plurality of original.....F. E. Crompton  
Indicator.....A. F. Dixon  
Indicator tab.....J. H. Rand  
Instrument holder.....R. W. Mills  
Insulator for automatically securing conducting-wires.....F. Zachhuber  
Insulator pin.....C. G. Ette  
Internal-combustion engine.....E. H. Belden  
Internal-combustion engine.....J. Kelly  
Internal-combustion engine, Two-stroke-cycle.....G. A. Brauer  
Jar top and cover.....E. A. Parker  
Jewel-setting tool.....F. Krimmling  
Joints for wires or rods, Making.....J. P. Eustis  
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Knitted web and making same, Salvaged.....R. W. Scott  
Knitted web and making same, Welled.....R. W. Scott  
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Knitting machine needle-actuating mechanism.....H. H. West  
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Ladder hook, Extension.....F. H. Moulton  
Lamp cut-out, Arc.....C. A. B. Halvorsen, Jr.  
Lamp fixture.....E. C. Sofia  
Lathe.....D. L. Calahan  
Lathe.....G. J. Costello  
Leather, &c., Apparatus for baking or curing patent.....W. R. Smith  
Level, Hydrostatic.....B. B. Farnham  
Life belt.....A. Moore  
Life-saving appliance.....S. P. Edmonds  
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Lighting device.....W. Danieck et al.  
Lighting device, Street.....T. S. Brown  
Lighting fixture (2 pats.).....L. Schepmoes  
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Line-casting machine, Slug for.....J. McNamara  
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Liquid-fuel burner.....W. Falkenberg  
Lock.....D. Ziegler  
Locks, Coin-controlled attachment for.....W. S. Farnsworth  
Locks, Safety-catch for cylinder.....J. M. Reiss  
Locking brake.....G. F. Suppes  
Locket.....J. F. Killen  
Logging hook, Safety.....E. J. Larson  
Loom harness stop-motion.....C. Lavallee  
Loom thread-parting mechanism (2 pats.).....A. E. Rhoades  
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Loom warp stop-motion (2 pats.).....J. Northrop  
Loom, Welt-replenishing.....E. H. Ryon  
Low-water alarm for steam boilers.....L. S. Waters  
Lubricating system for centrifugal machines.....A. G. G. Salenius  
Lubricator.....H. E. Coffin  
Magnet, Interpole field.....R. Lundell  
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Mattress pad.....T. C. Weltmer  
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Pallet-cleaning machine.....J. S. Collins  
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Paper-feeding device.....W. Matthews  
Paper pulp, &c., Rotary purifier for.....C. Vignex  
Paving block.....A. V. Sammis  
Pen extractor.....H. S. Dana  
Pen, Fountain.....H. W. Wood  
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Photographic-plate rack.....F. W. Barnes  
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Piano, Electric.....H. K. Sandell  
Picture-film rack.....C. F. Jenkins  
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Pin protector.....A. Burk  
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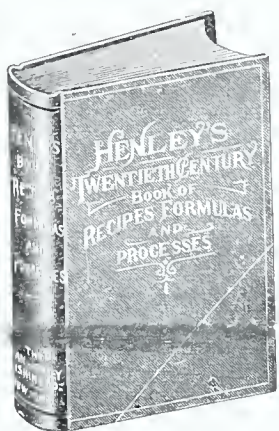
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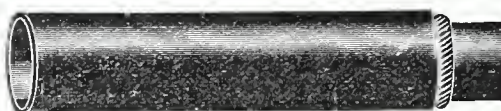
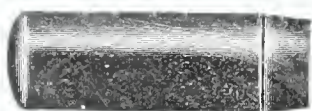
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## NEW ELECTRIC TOWER CRANE.

By C. VAN LANGENDONCK.

VERY good results are obtained with the new electric tower crane, a photograph of which is given herewith. The tower is composed of three sections, the divisions being made at the platform carrying the electric motors and their gearing, and at the platform supporting the sole-plates from which the two jibs of the crane spring. As a whole, the tower may be regarded as built up from four corner towers having each a rectangular cross section of 4 x 3 feet at their base, and of 18 inches square at their highest point. Each of these corner towers has a height of 98 feet 6 inches, and is built up of four angles braced together diagonally and across by flat bars and gusset plates, similar bracing being employed to connect the four elements into the main tower. Half-way up each of the three sections into which the main tower is divided, a diaphragm composed of stout angles and plates is introduced, with a view to giving increased rigidity and resisting torsional forces.

At the base of the tower where the section is 21 x 19 feet 6 inches, the structure is carried on a six-wheeled carriage composed of rolled steel joists, angles, and plates. A 10-horsepower motor is mounted on this carriage and transmits power to the wheels. At the top of the first section, at a height of 39 feet from the ground, the double set of gearing in connection with the jibs is carried on a floor composed of steel plates, channels and angle irons. The gearing required for hoisting, slewing and jibbing is driven by a separate motor of 20-horsepower for each jib, and all the movements, including traveling, are controlled from the motor floor. At the top of the second section and 75 feet from the ground, a floor is provided, carried on joists, channels and angles. The sockets, sole-plates and slewing gearing for the jibs are situated on opposite sides of this floor. Steel plates roof in the upper extremity



ELECTRIC TOWER CRANE.

of the tower, which has a rectangular section 6 feet 6 inches square, and from the ends of a cross beam carried at this point, steel links and pulleys support the jibs and provide the necessary means for radiating them. Each jib is of lattice steel-work construction, and is 45 feet in length. Provision is made for swinging either jib through an arc of 180 degrees. A series of steel ladders is disposed in the interior of the tower, and gives facilities for reaching any of the three platforms.

With regard to the performance of the crane, the following figures have been supplied:—At the maximum radius of each jib, 40 feet, a load of three tons can be raised at a rate of 85 feet per minute, while at a 17 foot radius the crane can deal with a weight of eight tons, the hoisting speed in this case being 36 feet per minute. The jibs can be used simultaneously, and when this is done, each can deal with a three-ton load at any radius up to the 40 foot limit. Forty-five seconds are taken to bring the jibs from their maximum radius to their minimum, while to slew them through their greatest arc of 180 degrees, thirty seconds are required. A traveling speed of 50 feet per minute is arranged for. During the working of the crane, 12 tons of ballast are distributed on the traveling carriage, placed in lots of three tons in each of the four corner towers.

Among novelties in the operation of cranes, may be mentioned a portable electric control, in the form of a box that may be hung by straps from the shoulders of the operator. It is specially designed for controlling cranes used in loading and unloading ships. The operator stands at a convenient place beside the hatchway of the ship, where he can see what is going on in the hold, or can walk around freely, the control box being connected with the crane mechanism by means of a flexible armored cable.



The controller is provided with two handles, one for controlling the lowering and hoisting motions, the other for the slewing and swinging of the crane, and an emergency button by which the current can be cut out and the crane brought instantly to rest. The crane motors can be worked from a 500-volt supply, but only 100 volts are used in the portable controller, a small generator being placed in the crane cabin for the provision of this low-voltage current.

The development of the electric motor, which has altered so many of the methods of manufacture and transportation, has perhaps influenced the design of no other single auxiliary apparatus in the productive industries more than that of cranes and hoists. The overhead traveler in its various forms is probably in greater demand than any other type of electric crane on the market, and as a result of the demand for these cranes, efforts have been made to standardize the details of construction. A few years ago all lifting machinery was worked by wheels having cast teeth, but with the introduction of electric driving and higher speeds, machine cut gearing became necessary. Many cranes are now supplied with machine cut gears throughout. Either mechanical or magnetic brakes are used. The three-motor type of crane is coming more and more into popular use.

It has often been said that the Panama Canal could never have been dug if it had not been for the steam shovel, operated by the overhead crane. An English traveler has recently contributed an interesting account of the working of this machinery to the London press. He says: "A monster of an engine shovel, almost uncanny in its movements, comes reeling forward over the uneven construction line. It bends its head and sticks its snout into the debris—the gray and red rock and soil. There is a clatter, it jerks back its head, and in its maw are four tons of broken rock. It heaves on one side, and from a door under its chin as it were, it dumps its load on one of the long cars of the waiting train. Then it plunges down for another mouthful. The cars have a fence only on the side away from the shovel, so that the contents can be easily dumped. Between each car and the next is a steel plate, so that it is just like a long ribbon of a car. When the shovel has deposited its mouthful, a man gives a signal and the engineer hauls along a few yards so the next mouthful may have room. Thus it goes on until the train is loaded."

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### ELECTRIC MOTOR FELLING TREES BY FRICTION,

A MOST interesting method of cutting down trees, by the frictional beat of a rapid moving wire, has been devised by Hugo Gantke of Berlin. He has designed a unique portable machine as seen in the accompanying photographs, and this apparatus has been able to cut down trees a couple feet in thickness, while blocks three feet in diameter have also been cut. By means of this novel scheme it is stated that the trees may be cut very close to the ground and with perfect safety to the operator, the long wire, moving at high speed, being driven by an electric motor located a considerable distance from the tree which is being operated upon.

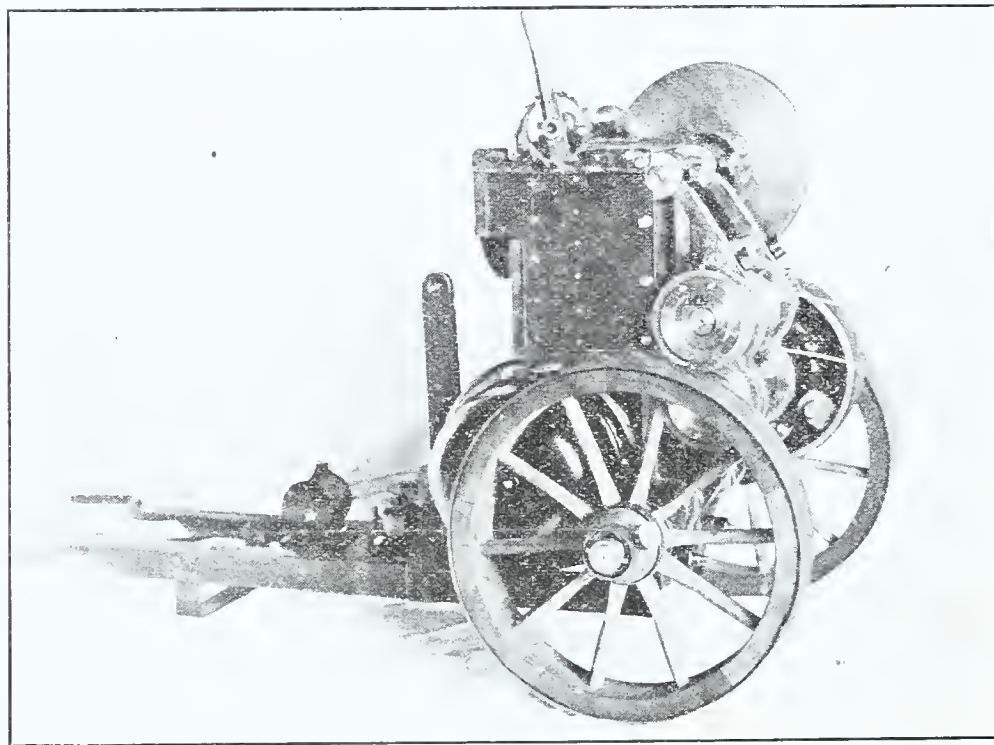


FIG. 1.—TREE CUTTING MACHINE.

At various times attempts have been made to cut trees with a wire heated by electricity, but without satisfactory results. The new scheme has succeeded. The steel wire is heated so intensely by friction as to burn a thin carbonized layer which is both smoother and cleaner than the cut of a saw. The charcoal layer, adhering to the trunk, is extremely thin and allows the structure and any disease of the wood to be distinctly recognized. It enables the tree to be marked with chalk, and at the same time serves to preserve any trunks that may be left temporarily in the woods.

This friction sawing machine, it is said, will work freely even on the thickest trees, without requiring any wedges to be inserted in the cut. Instead of any shavings there is only smoke and steam, and hence there is no danger of the cut becoming obstructed.

The tree may be cut very close to the ground, as far down as the beginning of the roots will permit. The stump may be safely left in the soil.

The piece of steel wire costs but a few cents and a new one is taken for each cut. Only one man is required to operate the machine, while two men would work hard with hand saws to do the same work. The larger the tree the higher is the relative cutting

speed. A trunk one and a half feet thick is cut through in six minutes. When electricity is not immediately available it can be generated by a portable gasoline power plant. With this device for mechanical felling of trees there is an entire absence of any waste. Oak, mahogany and other wood may be cut in this way.

The device above described is not only valuable in the saving of labor that it involves—as the cutting down of trees heretofore has practically all been done with the ax or saw—but in the fact that it cuts so close to the ground as to prevent the loss of the stump. It is a deplorable fact that less than fifty per cent of the average

exhaustive report on conditions in that section. Studies showed the relative value of turpentine obtained from the pine tree by various methods, and also showed that it was possible by steam distillation to obtain from refuse Southern pine a grade of turpentine equal for all practical purposes to gum spirits, which is the product obtained by scarifying the trunks of living trees. Other results were of similar importance. A number of wood fibers, of trees that had been rejected as waste, were shown to be as good for the wood pulp industry, which manufactures paper, as spruce, which is rapidly diminishing. Various kinds of lumber which had been considered useless, have now been found to have commercial value.

Not only will a goodly part of the tree, formerly wasted, be saved by the method of cutting by an electrically



FIG. 2.—TREE CUTTER IN OPERATION.

heated wire, but the reduction in size of the stumps will make easier the clearing of ground for cultivation. The burning of roots out of the ground, or their eradication in other ways, will be much simplified by this process.

#### Digging with Dynamite.

Dynamite has long been used for blasting out old stumps and getting big fallen trees out of the way, and recently there have been accounts in the press of its employment for dislocating tightly packed earth, in a kind of subsoil plowing. The latest is that builders of telegraph and telephone lines find it valuable in digging holes in frozen ground. Experiments have demonstrated that holes dug with dynamite cost only 35 cents, while the ordinary expense is \$1.75, and a tedious and arduous operation is avoided. With the aid of this new agent, a mile of line can be constructed in a day. A small dish-shaped basin, a foot and a half wide and six inches deep, is first prepared in the earth. A hole a couple of inches in diameter is then dug with an augur to the required depth, and a stick of dynamite inserted. When this is fired the earth will be loosened the full depth of the hole and for a couple of feet around, and is easily removed with a shovel.

THE INVENTIVE AGE contains sound advice to inventors and patentees. For lack of such advice many have lost money. Subscription price, one dollar a year.



## ICELESS ICE BOX.

A UNIQUE type of automatic iceless refrigerator for hotels and private residences is seen in the accompanying drawings. It is designed specially for the use of tropical expeditions. It makes 7 to 10 pounds of ice in two to three hours and is operated by an oil burner or wood fire. It is portable and absolutely "foolproof." The apparatus, during the heating stage, has the oil burner under the generator, while during the cooling stage the burner is removed and the cooling tank and insulated ice mould are in position.

The illustration, Fig. 1, shows this refrigerating apparatus with insulated brine bank for ice making. Its ice making capacity is from 1 to 1½ cwt. per twenty-four hours, according to external conditions. Fig. 2 shows a vertical type self-contained semi-automatic cabinet for country houses with a cooling power equal to that of about 2 cwt. of ice per twenty-four hours.

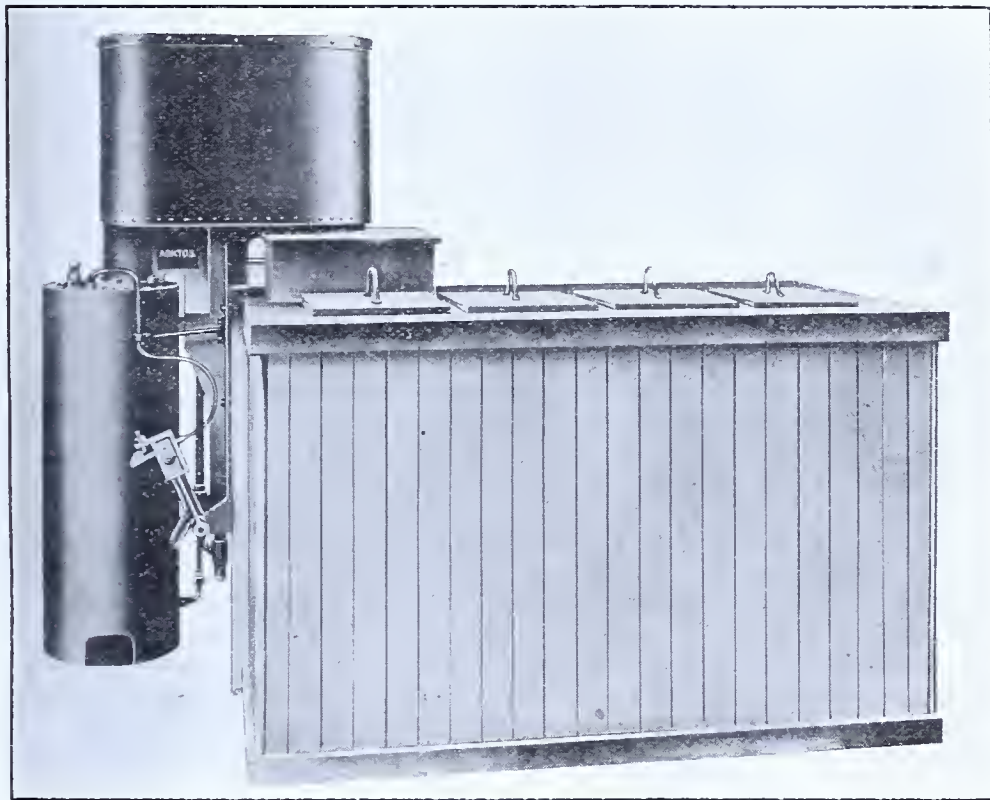


FIG. 1.—A SMALL ICE MAKING MACHINE.

The special panelled teak cabinet measures approximately four feet by three feet, is five feet high, and is lined with marble and fitted with marble shelves and solid nickel ice mold. The walls are thoroughly insulated and about six inches thick and the available capacity is about twenty-three cubic feet.

A simple appliance for artificially producing cold for a variety of purposes is a growing necessity. There are many refrigerating machines on the market, and for very large cold storage or ice making installations, where skilled engineers are always in attendance, these have been found eminently suitable: but where such attention is not available, they are certain to get out of order sooner or later.

For this reason, and because they all require some form of motive power, they have not found great favor with those requiring cold only on a small scale; it is for this class of users that

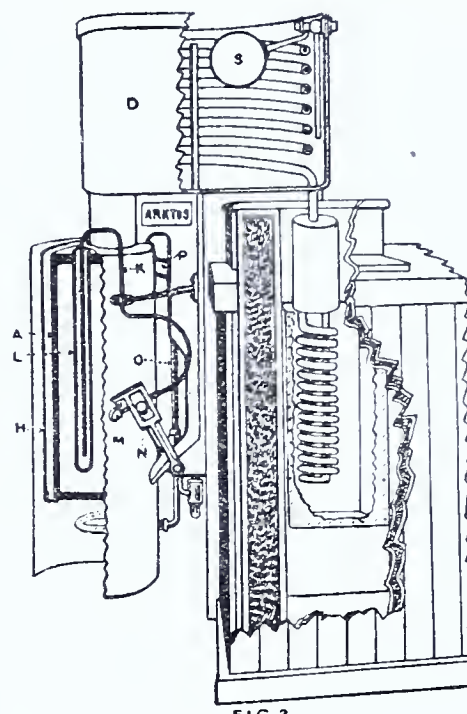
the new iceless refrigerator shown in the accompanying illustrations was specially designed.

It will be seen that it is a simple appliance which has no running machinery or complicated mechanism. It is constructed in various sizes for making from a few pounds of ice up to one ton per day, or for cooling from 1 to 10,000 cubic feet of storage space. It is operated by the direct application of heat from any available source, such as gas, steam, oil, wood, coal or electricity. Such is the simplicity of the principle that no running machinery regulating valves are employed, and as there are no moving parts to wear or get out of order, skilled attention is quite unnecessary and no repairs are required.

The apparatus is noiseless and vibrationless. It is constructed to maintain any required temperature, down to many degrees below freezing, according to the requirements specified

The resulting liquid (pure anhydrous ammonia) runs by gravity into the receiver *R*.

This process is continued until all the available ammonia has been distilled and collected in the receiver. At this stage there is left in the generator hot and very weak liquor (practically



A Residence Iceless Refrigerator.

pure water). The generator is then cooled by admitting cold water to the jacket *J*. This creates a partial vacuum, causing the anhydrous ammonia to evaporate very rapidly. At the same time the weak liquor is cooled and becomes "greedy" for ammonia. It therefore absorbs the vapor resulting from the evaporation of the liquid in the receiver as quickly as it is formed. The evaporation of the ammonia in the receiver continues until the whole of the liquid has evaporated and been reabsorbed by the liquor in the absorber (the vessel which previously acted as the generator). The liquid in evaporating takes up a large amount of "latent heat" and consequently the receiver becomes intensely cold and cools all surrounding objects.

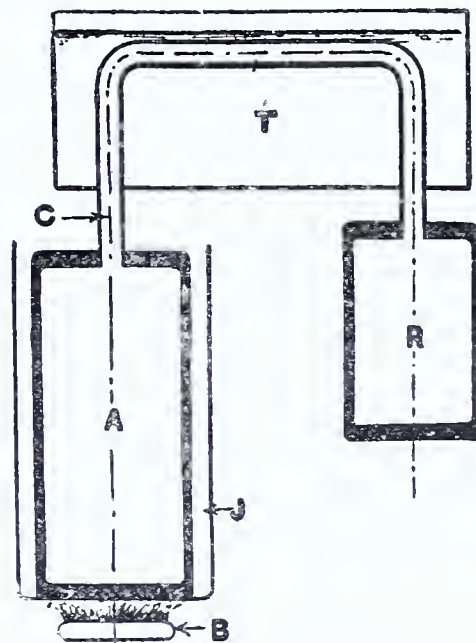


Fig. 3. Principle of Absorption Refrigeration

As soon as all the liquid has evaporated from the receiver the same state of affairs exists in the apparatus as before the heating was begun. The process can therefore be started again and the same cycle of operations can be repeated an unlimited number of times. The ammonia is not altered or weakened by the process and as there

is no possibility of escape, the same change of liquor will last indefinitely.

To increase the evaporative surface and hasten the evaporation, the receiver often has a coil of pipe connected with it. In many cases this coil is immersed in a tank of brine or other non-freezing solution. This brine acts as a storage for a large quantity of cold and maintains a uniform temperature during the time when the apparatus is not being worked.

It will be seen that the machine is operated by alternately heating and cooling the vessel *A*, which acts in turn as a generator and absorber. There is an automatic device for turning off the heat and admitting water to the cooling jacket. The tube *K*, (Fig. 2) is filled with water and sealed. The curved portion is flattened. The straight end of it dips into well *L*, which is surrounded by the liquid *A*. As the temperature of the latter rises, the water in the tube *K* becomes heated and expands. Owing to this expansion the curved part of the tube tends to straighten out more and more. At the end of a tube is a catch *M*, against which rests the weighted lever *N*. The catch is so adjusted that at the required temperature the lever is released and falls. The lever is connected with the gas tap on a three-way water cock, and when it falls, it

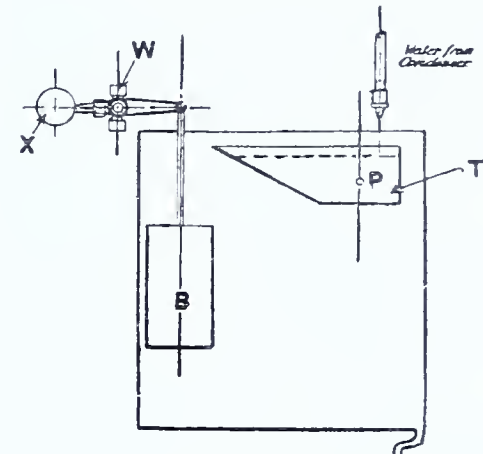


Fig. 4. Automatic Device For English Iceless Refrigerator.

turns out the gas leaving only a small pilot light burning, and admits water through pipe *O*, from the tank *D*, to the jacket *H*. The water fills the jacket and overflows through the spout *P*, and is either carried away to waste or collected in a tank for future use.

The level of the water in the tank *D*, is maintained by the ball-cock *S*, connected to the water supply. The apparatus is reheated by raising the lever *N*, which cuts off the gas and cuts off the water supply from the tank *D* to jacket *H*, and drains the latter. There is no communication between the well *L*, and the generator *A*.

It is held that a completely automatic gear can be fitted as indicated in the drawing and the device will continue working without attention so long as the water is running. Part of the water overflowing from the condenser is allowed to run into the tipping tank *T*, (Fig. 4) pivoted at *P*. When this tank is full up to a certain level, it overbalances and pours its contents into the bucket *B*, which drops and operates the water and gas cock *W*. The tipping tank when empty immediately returns to its normal position. In the bucket *B* is a small hole so that whilst the tipping tank is refilling, the bucket empties itself, and the counterweight *X* raises it into position again.

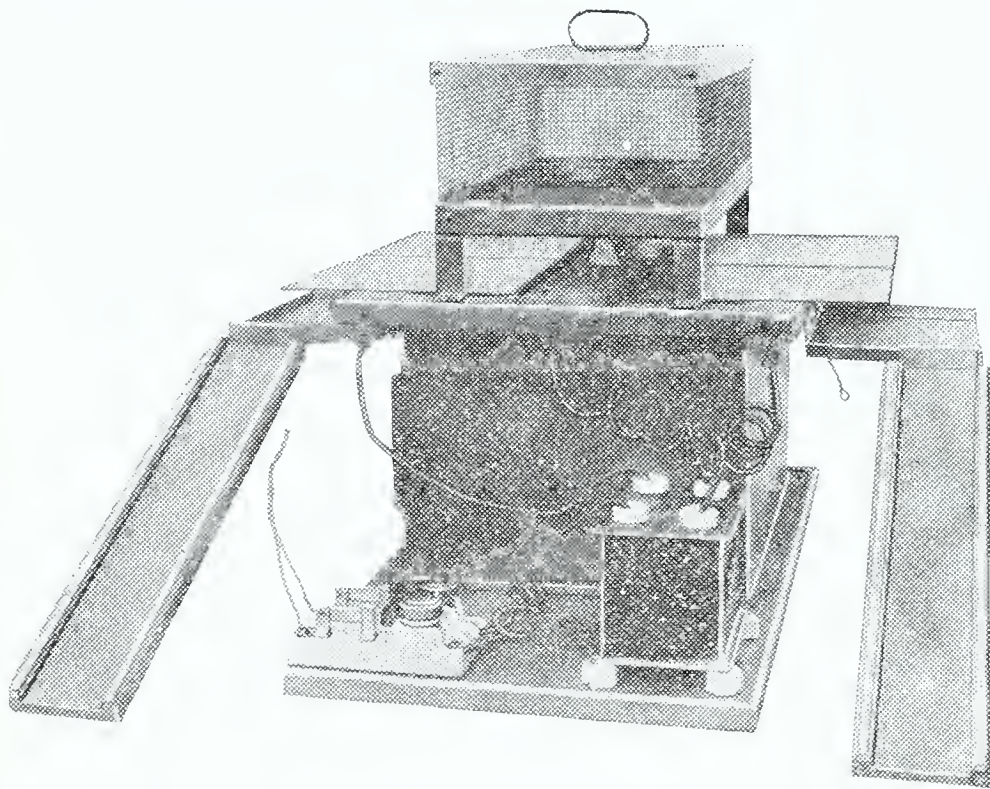
The cost of operating the machine is very low and as there are no expenses to keep up, it is far more economical in use than any other form of artificial refrigeration.



## ELECTROCUTTING RATS.

### An Invention of Universal Importance.

Rats have always been regarded as a general nuisance, but of late they have come to be considered as dangerous pests as well. It has been found that they are disease carriers, like the "harmless" fly, and that the plague and perhaps other dreaded afflictions are transferred from place to place by them. They also destroy millions of dollars' worth of property every year. Various methods for exterminating them are attracting the attention of the public, and among the most interesting is a kind of electric chair—a device for electrocuting them swiftly and silently, removing the dead animals and automatically adjusting itself to receive fresh victims. The mechanism can be used with entire safety in any part of a house, and an ordinary electric lamp socket attachment is sufficient to supply the necessary current. The mechanism, which has been patented by Robt. L. Barnhart, of Charleroi, Pa., consists of a trap, from the roof of which depends a wire cage. In this cage may be imprisoned a few live rats, to serve as decoys. The trap has a number of doors, made of metal and insulated from other parts of the device. Each of the doors has a curved portion extending downwardly. Springs hold the trap doors level, and each has a hook for holding the bait. A second series of trap doors adjoin those described, and these are also insulated and have openings through which they extend. All the doors are mounted on wires which extend around the cage, and other wires run from these to the binding posts and are connected with any suitable electrodes of opposite sign, in which the difference of potential is enough to kill a rat. Runways extend from the floor to a gallery around the trap, and enable the rats to enter.



In operating the device, bait is placed on the hooks, and if desired, rats or other living animals can be placed in the cage as decoys. The rat outside sees the bait, and walks up the runway to the gallery. He next passes through one of the openings, his weight then resting on the trap door. This tilts, and the rat rolls down, his body forming a bridge between the trap doors. This completes the circuit between the two sets of trap doors, wires and binding posts, and the rat being subjected to the action of the current thus traced, is killed in from five to ten seconds. His weight being then thrown on the downwardly extending portion of the trap door, this latter is tilted and the body is precipitated into a drawer from which it can be removed at convenience. The trap doors are then returned to their normal position by the action of the springs, and all is ready for another victim. This trap, as will be seen, is practically always set and is automatic, both as regards the electric current and the position of the doors.

In order to hasten the introduction of the invention, the inventor has decided to sell all state rights free of royalties, and will give any one the opportunity to secure the right of any state or states to manufacture and make use of this machine. Every known business house throughout the country has the rat to contend with and would willingly pay a good price to get rid of this pest.

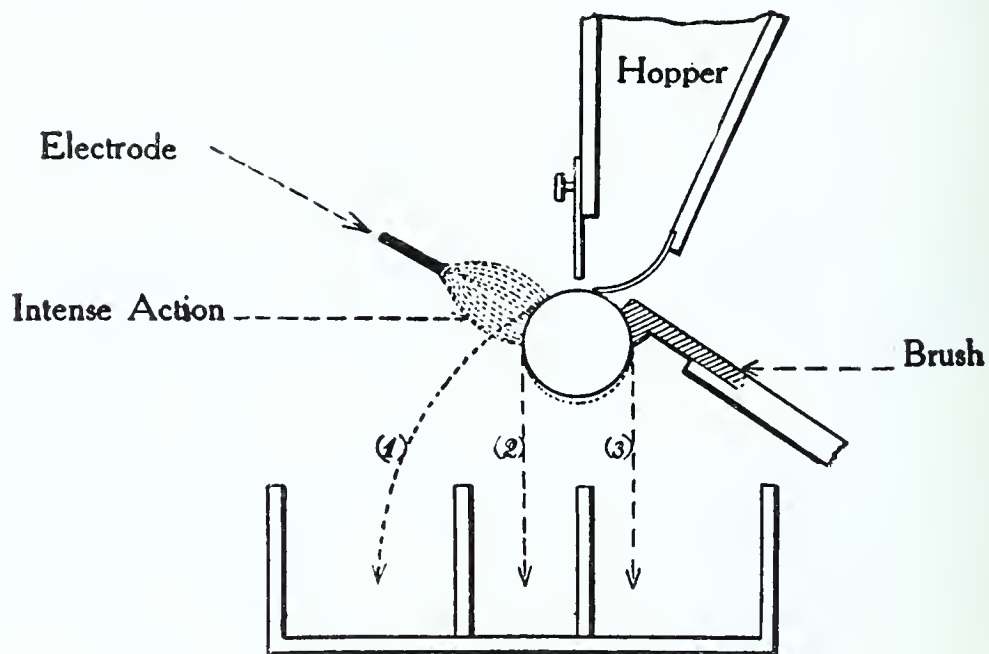
### ELECTROSTATIC SEPARATOR MILL.

Electrostatic separators have been installed for crude silver ore concentration at Austin, Nevada. The principle of operation of the electrostatic separators is shown in the accompanying sketch, the device utilizing static electricity in the separation of the mineral particles. There were first installed at the Austin mill, six separators of the Huff type of 75 tons capacity, with provision for 36 machines.

It is stated that the electrostatic process of dry concentration of gold and silver ore is of the utmost importance in the State of Nevada. Every mineral,

if subjected to a sufficiently high voltage (electrical pressure), conducts electricity to some extent, either through its body or over its surface. As minerals differ in the readiness with which they conduct, it follows that when a mixture of minerals is subjected to a charging influence there will be differences in the time required for the different minerals to become electrically charged; and conversely, if all the minerals of a mixture become charged in some manner, there will be differences in the time in which the different minerals discharge when in contact with a discharging surface.

If a mixture of five copper grains (good conductors), and five quartz grains (poor conductors), while in a neutral condition, be brought in contact with a surface highly charged with electricity the copper grains, because they conduct the electricity readily, become immediately charged to the same condition as the surface, and, if not too heavy, fly from it; the quartz, because a poorer conductor requires a longer time to receive 4 charges from contact with the surface, hence clings until its electrical condition becomes similar to that of the surface, or if, the surface be in a suitable position, may drop off by reason of its weight.



In case the mixture is first charged with electricity of one kind and then subjected to contact with a surface charged with electricity of the other kind, the copper grains will instantly lose their first charge and leave the plate as before, while the quartz grains will cling much more vigorously than before (because unlike charges attract one another), until the charge first received becomes neutralized by the charge of the surface, or until they are brushed off.

Instead of moving the mixture of good and poor conductors progressively into the regions of different electrical condition to effect the separative action, the electrical condition of the surface upon which they rest may be very suddenly changed, when the better conductors will more rapidly follow the electrical changes than will the poorer conductors.

Electrostatic separators use these different effects in numerous ways, all utilizing the differences of electrical conductivity of the particles. There may be vigorous repulsion of all the minerals fed to it, but the better conductors are more vigorously repelled than the poorer conductors. The better conductors may be vigorously repelled while the poorer conductors cling tenaciously to the surface. Or there may be apparently no repulsion, the separation being made by the poorer conductors clinging more tenaciously to the surface than the better conductors.

## PATENTS

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## LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

**BEIFELD v. DODGE BUB. CO.**  
(Circuit Court, S. D. New York, Dec. 28, 1911. 198 F. R. p. 658.)

### 1. COPYRIGHTS—INFRINGEMENT—COPY FROM SKETCH.

An artist contracted to paint and copy-right a picture for complainant, and having done so, defendant without complainant's permission printed substantial copies of the painting claimed to be from copies of a sketch made by the artist before completing the painting and given to defendant's vendor. The only differences between the sketch and the finished painting were in the treatment of certain minor details. Held, that since any one, by making slight alterations in the copyrighted painting, could not obtain another copyright or publish it free of the original copyright, and the artist could not publish the sketch free of the copyright of the painting for the same reason, defendant's publication constituted an infringement.

### 2. WITNESSES—COMMUNICATIONS BETWEEN THIRD PERSONS.

In a suit for infringement of a copyright on a painting sold to complainant and copyrighted in his name, correspondence between the artist and the C. Co. as to the publication of a sketch of the picture from which defendant's copies were printed, produced under a subpoena duces tecum, was inadmissible as relating to transactions between third persons which might expose the publisher to penalties.

**STAR BUCKET PUMP CO. v. BUTLER MFG. CO.**

(District Court, W. D. Missouri, W. D. July 8, 1912. 198 F. R. p. 857.)

### 1. PATENTS—INFRINGEMENT—PATENT FOR COMBINATION.

A patent for a combination in which an essential element, constituting the principal part of the invention, is designed for a particular function, specially described, is not infringed by a combination in which such element, although present in form, owing to a difference in the construction of the other parts, is wholly inoperative to perform the function specified, but is used for a different purpose.

### 2. PATENTS—VALIDITY AND INFRINGEMENT—PUMP CURB RESERVOIR.

The Bartliff patent, No. 616,394, for a pump curb reservoir, designed particularly for chain pumps, claim 1, construed, and held not infringed.

### 3. PATENTS—DESIGNS—INVENTION—DESIGN FOR PUMP CURB.

The Bartliff design patent, No. 28,190, for a design for a pump curb, conceding that the subject is a proper one for a design patent, is void for lack of patentable invention in view of the prior structures.

**A. STEIN & CO. v. LIBERTY GARTER MFG. CO. et al.**

(District Court, S. D. New York, Sep. 20, 1912. 198 F. R. p. 959.)

### TRADE-MARKS AND TRADE-NAMES INFRINGEMENT—PRELIMINARY INJUNCTION.

Where complainant owned a valid trade-mark in the name "Paris" as applied to garters, and there was evidence that defendant's use of the word "French" in the same connection produced confusion among retail purchasers, and also that defendant's connection with the defendant in a prior suit relating to similar alleged infringement was such that it might have had the question as to confusion of goods and as to similarity of names settled in that suit, complainant was entitled to a preliminary injunction restraining defendant's use of the word "French" as applied to garters in competition with plaintiff's trade-mark.

**CHARLES BOLDT v. TURNER BROS. CO.**

(Circuit Court of Appeals, Seventh Circuit, April 23, 1912. 199 F. R. p. 139.)

### 1. PATENTS—DESIGNS—INVENTION.

Originality and the exercise of the inventive faculty are as essential to the validity of a design patent as of a mechanical patent.

### 2. EVIDENCE—JUDICIAL NOTICE—EFFECT.

The court may take notice of what is common knowledge in a patent case, and the presumption of validity arising from the grant may be overcome as effectually by facts within the judicial knowledge, if adequate, as by the introduction of evidence.

### 3. PATENTS—INVENTION—DESIGN FOR BOTTLE.

The Boldt design patent, No. 39,921, for a design for a bottle, is void on its face for lack of patentable invention.

**MONASH-YOUNKER CO. v. VAN AUKEN et al.**

**VAN AUKEN et al. v. MONASH-YOUNKER CO.**

(Circuit Court of Appeals, Seventh Circuit, Feb. 20, 1912. Rehearing Denied May 7, 1912. 199 F. R. p. 123.)

### PATENTS—VALIDITY AND INFRINGEMENT—DISCHARGE VALVE FOR STEAM RADIATOR.

The Van Auker patent, No. 828,153, for improvements in valves for radiators for discharging air and water of condensation from steam heating systems was not anticipated and discloses invention, but the scope of the invention is limited by the prior art to the particular means in combination described and shown; as so construed, held not infringed.

**ALEXANDER v. DE MOULIN BROS. CO.**

(Circuit Court of Appeals, Seventh Circuit, Jan. 2, 1912. Rehearing Denied May 7, 1912. 199 F. R. p. 145.)

### PATENTS—INVENTION—INITIATION APPARATUS.

The De Moulin patent, No. 555,449, for an initiation apparatus for secret societies, is a mere aggregation of old and well-known devices, each operating separately to produce its own independent result, and is void for lack of patentable invention.

**EGGLESTON v. MILWAUKEE HEATER MFG. CO.**

(Circuit Court of Appeals, Seventh Circuit, April 23, 1912. 192 F. R. p. 147.)

### PATENTS—VALIDITY AND INFRINGEMENT—RELIEF DEVICE FOR WATER SYSTEMS.

The Eggleston patent, No. 838,394, for a relief device for water systems, comprising a pressure and relief attachment which may be used with steam or hot water heating systems, claims 6, 7, and 8 are not for the same subject-matter as that abandoned by the cancellation of original claims 2, 3, and 4, but are a more accurate embodiment of the patentee's conception and cover a new combination of merit and disclose invention; also held infringed.

**GAMEWELL FIRE ALARM TELEGRAPH CO. v. HACKENSACK IMPROVEMENT COMMISSION**

(District Court, D. New Jersey, May 20, 1912. 199 F. R. p. 182.)

### 1. PATENTS—INFRINGEMENT—PRELIMINARY INJUNCTION—ISSUE.

Where a patent has been held valid in prior litigation, and defendant, in a suit for infringement, relies on a prior use to invalidate the patent, and in doing so pleads a defense which was not presented in the cases wherein the patent was sustained, the only matter which can be considered on an application for a preliminary injunction is the question of infringement and whether the evidence of prior use is such that, had it been before the court in the case in which the patent was sustained, the court would probably have reached a different conclusion.

### 2. PATENTS—INFRINGEMENT—PRELIMINARY INJUNCTION—BURDEN OF PROOF.

Where, in a suit for infringement of a patent, sustained in prior litigation, defendant pleaded prior use not previously presented, the burden was on defendant to show that the prior use was such as, if previously presented, would probably have caused a different decision; every reasonable doubt being resolved against it.

**GAMEWELL FIRE ALARM TELEGRAPH CO. v. STAR ELECTRIC CO.**

(District Court, N. D. New York, Sept. 25, 1912. 199 F. R. p. 185.)

### 1. PATENTS—VALIDITY AND INFRINGEMENT—FIRE ALARM APPARATUS.

A preliminary injunction against infringement of the Ruddick patent No. 553,873, for a noninterfering signal apparatus, denied, where the validity and scope of the patent and infringement were all in issue, the patent would expire in six months, and the defendant was financially responsible.

### 2. PATENTS—SUIT FOR INFRINGEMENT—PRELIMINARY INJUNCTION.

In an infringement suit, the complainant's case should be reasonably free from doubt on every question necessary for him to establish in order for him to obtain the relief demanded, to entitle him to a preliminary injunction, and should be established by other than ex parte affidavits, where their essential allegations are controverted by others of the same character and substantially equal credibility.

**BRISTOL CO. v. GRAHAM.**  
(Circuit Court of Appeals, Eighth Circuit, Aug. 22, 1912. 199 F. R. p. 412.)

### 1. TRADE-MARKS AND TRADE-NAMES—MARKS SUBJECTS OF APPROPRIATION—DRAWINGS OF EXPIRED PATENT.

On the expiration of a patent, any one has the right to make the patented article, and to describe it in advertisements not only in the language of the patent, but also by the use of a drawing therein, and the patentee cannot, by registering such drawing as a trade-mark, secure the right to its continued exclusive use, since it becomes free to the public, along with the article which it describes.

### 2. TRADE-MARKS AND TRADE-NAMES—UNFAIR COMPETITION.

Evidence considered, and held insufficient to sustain a claim of unfair competition by imitation of complainant's labels and boxes containing belt lacings.

**CONROY et al. v. PENN ELECTRICAL & MFG. CO.**

**PENN ELECTRICAL & MFG. CO. v. CONROY et al.**

(Circuit Court of Appeals, Third Circuit, Oct. 11, 1912. 199 F. R. p. 427.)

### 1. PATENTS—INFRINGEMENT—DAMAGES—PROFITS.

In general, a patentee, on a decree for an accounting against an infringer, can only recover profits shown to be due to the inventor's patented contribution to the art, and not to the whole profits made on the manufacture and sale of the article to which he has only contributed an improvement; but this rule does not apply to a case where the invention does not consist of a mere improvement on, or an attachment to, or modification of a prior device of some particular character, but constitutes a new and complete type of article, constituting a single unitary and complete structure, no one of the parts or elements of which could be omitted and a useful and operative device remain, in which case the infringer is liable to account for the whole profits made from the manufacture and sale of the infringing article.

### 2. PATENTS—INFRINGEMENT—ACCOUNTING.

On an accounting of profits for the infringement of a patent on a particular style of toilet mirror, defendant was not entitled to credit for alleged saving in manufacture by the use of certain patented machines in chipping the edges of the glass plates, where it appeared that, prior to the patenting of such machines, chipping machines for the same purpose were in use by claimant; there being no showing that any saving was effected by defendant over the cost to complainant by defendant's use of such patented machines.

### 3. PATENTS—INFRINGEMENT—PROFITS—ACCOUNTING.

On an accounting of profits for the infringement of a patent, the infringer is not entitled to credit for profits due to an alleged saving, because of superior skill and intelligence, over the cost to complainant of producing the patented article.

### 4. PATENTS—INFRINGEMENT—PROFITS—ACCOUNTING—EVIDENCE.

On an accounting of profits for the infringement of complainant's patent on toilet mirrors, evidence of the cost to others of silvering mirrors was inadmissible, except for comparison in testing defendant's claims for credit of the cost of manufacture; the question being the actual cost to defendant.

**PRATT et al. v. AUTO SPRING REPAIRER CO.**

(District Court, D. Massachusetts, Dec. 20, 1911. 199 F. R. p. 431.)

On the back of an order for certain patented auto spring repairers, the seller printed a "Warning to Trade," advising that its counsel claimed that the seller's patent covered broadly the seller's type of spring repairer, that all spring repairers of this type made by others were infringements, and that the seller had recently brought suit against a certain alleged spring repairer for infringement, and intended to proceed vigorously against all others who made and sold such articles. Held, that such

notice did not constitute an undertaking to protect the seller's customers against infringement and as a guaranty against infringing competition.

### 2. BANKRUPTCY—PROVABLE CLAIMS—DAMAGES—LOSS OF PROFITS.

A bankrupt on January 4, 1910, gave to claimant two orders, one for 50 gross of "Only Cotter setters," to be taken 5 gross or more at a time, during 1910, and the other for 2,000 auto spring repairers, to be taken in lots of 50 or more at a time, during the same year. Fifty gross of the setters were shipped, and 100 auto spring repairers, when the bankrupt canceled both contracts, without valid ground for so doing, and refused to receive any more. The materials were manufactured and sold under patents, and it did not appear that, when the orders were repudiated, claimant had any goods with which to fill the subsequent orders, or had prepared to ship the same. Held, that claimant was entitled to prove for the difference between what the articles would have cost to manufacture and deliver and the contract price.

**W. H. COE MFG. CO. et al. v. AMERICAN ROLL GOLD LEAF CO. et al.**

(District Court, D. Rhode Island, Sept. 28, 1912. 199 F. R. p. 435.)

### 1. PATENTS—VALIDITY AND INFRINGEMENT—MACHINE FOR PACKAGING DECORATIVE FILMS.

The Coe patent, No. 580,817, for a machine for packaging decorative films, designed for winding up on a supporting strip of paper and into a package roll a continuous strip of gold leaf or similar metallic film entirely by mechanical action, was not anticipated, discloses patentable invention, and is entitled to a fairly broad range of equivalents; also held infringed.

### 2. PATENTS—INFRINGEMENT—SIMILARITY OF OPERATION—"AUTOMATICALLY."

The word "automatically" may properly be applied to a mechanism which is hand-actuated, as well as to mechanism which is actuated by other mechanism, where, when so actuated, the parts co-operate and perform their functions automatically.

### 3. PATENTS—VALIDITY AND INFRINGEMENT—PACKAGE ROLL OF METALLIC LEAF.

The Coe patent, No. 848,883, for a package roll of metallic leaf, held valid and infringed.

**MARSHALL & STEARNS CO. et al. v. MURPHY MFG. CO. et al.**

(Circuit Court of Appeals, Ninth Circuit, Oct. 28, 1912. 199 F. R. p. 772.)

### 1. PATENTS—INFRINGEMENT—APARTMENT WALL FURNITURE.

The Jordan patent, No. 892,662, for an improvement in apartment wall furniture, consisting of a door or panel centrally pivoted at the top and bottom in the wall of an apartment, so as to be turnable on a vertical axis, having on one side a bed hinged at the bottom, so that it may be folded to stand vertically when not in use, and on the other side an article of furniture, such as a wardrobe or book case, as limited by the prior art and the proceedings in the Patent Office, is not infringed by the device of the Murphy patent No. 1,007,596, for a disappearing bed, which consists of a door hinged at the side, upon the back of which there is mounted a bed.

### 2. PATENTS—CONSTRUCTION—EFFECT OF PROCEEDINGS IN PATENT OFFICE.

The rule that a patentee, who has acquiesced in the rejection by the Patent Office of broad claims and limited the same, cannot claim the benefit of the rejected claim, is not affected by the fact that the rejection was upon an interference, and that the interfering application has been withdrawn or abandoned.

**TOWNE STEERING WHEEL CO. v. LEE.**

(Circuit Court of Appeals, Ninth Circuit, Oct. 7, 1912. 199 F. R. p. 777.)

### 1. PATENTS—SUIT FOR INFRINGEMENT—DEMURRER.

If there is obviously no patentable invention in a patented device, it is within the power and is the duty of the court to sustain a demurrer to a bill for infringement; but such power should be exercised with the utmost caution, and all doubts should be resolved against the defendant.

### 2. PATENTS—INVENTION—STEERING WHEEL FOR AUTOMOBILES.

The Towne patent, No. 848,144, for a steering wheel for automobiles, having a rim with a smooth outer surface, and an inner surface with scallops or indentations, to prevent the fingers of the operator from slipping, is void on its face for lack of invention.



## MECHANICAL INVENTIONS

Patents for which have been procured through the Patent Soliciting Office of E. G. Siggers, Patent Lawyer, Washington, D. C.

Maddra J. Hewlett, Kewanee, Ill. Two patents.—The first patent relates to a molding apparatus. Heretofore in the art of molding, cores have been made of the same material as the mold, but it has been necessary to form the core of two halves in separate pattern sections, which are subsequently fitted together to unite the two halves of the core to complete the same. The object of the present invention is to enable a mold and its core to be formed simultaneously of the same material without removing or changing the parts of the apparatus until both the core and the mold are completed, thereby effecting a great saving in time, labor and expense in making molds and cores. The molding apparatus includes a sectional flask, and combined pattern and core box plates fitted together to provide a core box and arranged between the flask sections to form molds therein. The core box is opened to enable a complete core and mold to be formed without changing the apparatus.

The second patent covers an apparatus for the molding of sand or analogous material, either for the formation of the cores or in the making of molds, in which the expansive force of compressed air is employed to carry the sand to, and pack it in, the molds. Prior to the present invention when a relatively large sand holding or compression chamber has been employed for molding a large number of cores, or for making a relatively large mold, it has been found that the compressed air will cut grooves or passages through the body of the sand within the sand holding or compression chamber, and that after these grooves or passages are formed, the air will travel through them to the core box or flask and fail to carry the sand with it. As a result of this, most of the air will escape and the core box or flask will become filled with air instead of sand, and it will be necessary to clean out the molding apparatus and start over again. The object of the invention is to provide a construction whereby the compressed air will positively carry the sand from a relatively large compression chamber to a core box or flask and firmly pack the sand therein. The molding apparatus comprises a sand holding chamber having a plurality of separate sand receiving pockets or compartments, each having a separate sand outlet, and means for supplying compressed air to the said chamber for simultaneous delivery to the said pockets or compartments.

Charles P. Hodges, Brownsville, S. C. Cultivator.—The invention of this patent has for its object to provide a cultivator designed particularly for cultivating cotton and corn, and capable of preliminary adjustment to arrange the cultivating devices the proper distance apart to suit the width of the rows, and of adjusting the cultivating devices inwardly and outwardly during the operation of the cultivator to suit the unequal width of the rows in the same field. The cultivator is adapted to cut grass and weeds, thoroughly pulverize the whole bed, throw the soil towards the plants and level the ground. It comprises in its construction a frame, spaced independently-adjustable plow beams located at opposite sides of the frame

and provided with cultivating devices, said beams being pivoted to the cultivator frame at one end and slidably connected with the frame at the other end and arranged to swing transversely, and separate operating means connected with the plow beams for moving the same inwardly and outwardly.

Little B. Johnson, Fresno, Cal. Liquid Cooler.—The object of the invention is to provide a cooler designed especially for use in connection with a city or other water supply, and capable of utilizing the same for supplying coolers with drinking water, and also for spraying or sprinkling the cooler to reduce the temperature through the evaporation of such moisture. The cooling apparatus includes a tank, an absorbent covering receiving the tank, a trough located above the tank and supporting the covering and adapted to moisten the same, and a spray pipe arranged within the trough beneath the absorbent covering and provided with perforations for discharging water upon the inner face of the absorbent covering.

Jacob C. Knuckles, Ferndale, Ky. Combined Auger and Reamer for Boring Blast Holes.—The tool of the present invention is designed to be operated either by hand or a machine, and is adapted to bore a hole in coal and enlarge the inner end of the bore so as to get all of the blasting powder in a bulk at the head of the hole, and at the same time afford more room for tamping the same. The combined auger and reamer includes a tubular stem provided at the outer end with a head having openings, reaming bits adapted to extend through the openings of the head, a feed screw operating within the stem and connected with the reaming bits, a coupling frame connected with the inner end of the stem and provided with means for connecting it with an operating element, and a handle connected with the feed screw and operating within the frame.

George W. Tanner, Cartersville, Ill. Cotton Harvester.—The object of the present invention is to provide a cotton harvesting machine adapted to pick the bolls from the plants, crush the former and separate the cotton from the bolls, enabling the cotton to be picked in a shorter time than heretofore and effecting a saving of cotton by picking all of the bolls, so that an entire crop of cotton will be picked without waste. The machine comprises in its construction spaced plant-lifting rolls arranged at the front of the machine and extending downwardly and forwardly and having contiguous plant-gripping faces adapted to clamp the branches of the plants between them, means for causing the contiguous faces of the rolls to lift upwardly the branches of the plants, boll-picking cylinders provided with teeth and located in rear of the said rolls and inclined upwardly and rearwardly, and means for causing the inner portions of the cylinders to move upwardly to strip the bolls from the cotton plants. The machine is also equipped with a concave and rotary cylinder for crushing the bolls, and mechanism arranged to receive the material from the crushing means for separating the cotton from the bolls, said mechanism comprising a hopper composed of spaced rods bent at an intermediate point to form angularly related portions, one of the portions being curved to form a constricted pocket, and a rotary cylinder arranged adjacent to the pocket and having teeth operating through the same.

Felix A. Waschka, Crowley, La. Lubricator for Furrow Cutters.—The object of the present invention is to provide a lubricator adapted to feed a lubricant to the hubs of a plurality of disks, and equipped with means for controlling the flow of the lubricant and for also cleaning the oil passages leading to the hubs to prevent the same from becoming clogged. The lubricator includes a tubular axle receiving the hubs of the disks and forming a lubricant chamber and provided with oil holes located within the hubs, a combined cleaning and regulating member pivotally mounted within the axle and provided with projections forming closures for the oil holes and adapted also to clean the same, and means for securing the member in its adjustment.

David B. Whitehill, Clarendon, Pa. Three patents.—The first patent relates to a bailing bucket for oil and analogous wells, and the primary object is to provide a structure adapted to be easily manufactured and readily assembled, and wherein the valve mechanism will permit the free passage of the liquid into the bucket while effectually prohibiting leakage therefrom. The device comprises a bucket having a cylindrical bucket shell, an annular bottom attached to the shell and having an upwardly extending annular flange surrounding its central opening, an annular packing ring having a flat upper face of a thickness to extend above the flange, said ring being compressed between the flange and the bucket shell and closing the joint between the same and the outer face of the annular bottom, and a valve having a flat margin to rest upon the said packing and provided with an unbroken upper face and with a stem projecting downwardly through the annular bottom.

The second patent covers a slack controlling device for well bailing operating mechanism, adapted to overcome the kinks and consequent breaks in the wire line or cable of such mechanism, and capable of automatically taking up the slack and simultaneously checking and stopping the rotary movement of the drum or reel to prevent excessive slack. The device includes a well bailing drum or reel, a wire cable extending from the drum or reel and adapted to be connected to a bail, a band brake for checking excessive rotary movement of the drum or reel when the same is released by the well bailing mechanism to permit the cable to unwind freely, a gravity acting lever for applying the brake, and means operated by the cable for supporting the lever in an elevated position when the cable is taut, and for permitting the lever to apply the brake when the cable is slackened.

It is the aim of the invention of the third patent to provide a clutch-actuating device designed for use in connection with well bailing operating mechanism, enabling a wire rope or line to be employed in such mechanism. The mechanism comprises a driving shaft, a drum shaft, a lever located at the outer end of the drum shaft, a clutch wheel mounted on the driving shaft, clutch mechanism for engaging the clutch wheel including a sleeve slidable on the drum shaft, a slidable frame composed of side bars located at opposite sides of the drum shaft, an inner end bar connecting the side bars with the sleeve, and an outer end bar connecting the side bars with the lever.

John H. Brooks, Home, Kan., inventor; John H. Allen & C. D. Atkinson, Pocahontas, Iowa, assignees. Combined Wrench and Pliers.—The object of the invention is to provide a tool adapted for use either as a pair of pliers or a wrench, and capable of being quickly and easily adjusted to arrange it for operating on the desired object. The invention comprises in its construction two members, each provided at one end with a handle and at the other end with a jaw, one of the members being also provided adjacent to its jaw with a longitudinal opening to receive the other member and the latter having a plurality of perforations adjacent to its jaw, a lever fulcrumed between its ends on the exterior of the member having the longitudinal opening and provided at its outer end with a pivot pin piercing the adjacent side wall of the said opening and engaging with one of the perforations, and a spring bearing against the inner end of the lever and serving to retain the pin in its adjustment.

Edward D. Carter, Dallas, Texas. Automatic Sack Filling and Weighing Machine.—This invention has for its object to provide a weighing machine of the automatic type equipped with means for controlling the feed of the material during the final stage of filling a sack, so that the feed can be diminished gradually for effecting accurate weighing. The weighing machine comprises in its construction a supporting structure, a swinging element fulcrumed thereon, a swinging scale beam also fulcrumed on the structure, an oscillatory frame mounted wholly on the said element and disposed between the same and the beam, and including sack-holding means on the frame for holding a plurality of sacks, a feed chute, and mechanism for holding the frame in position for permitting the chute to discharge into any sack and to automatically permit the oscillatory frame to shift under the weight of the filled sack for placing an empty sack under the chute.

Dora Cass Bronson, Montgomery, Ala. Garment Supporter.—It is the aim of the present invention to provide a garment supporter designed for supporting hose and preventing wear and tear of the same, and capable of firmly gripping thin delicate fabrics without cutting or otherwise injuring them. The garment supporter comprises a clasp composed of a resilient back plate provided with spaced straight outwardly extending transverse flanges converging slightly to present inclined or angularly disposed inner engaging faces, and a front plate provided with spaced inwardly extending straight transverse flanges received between, and clamped by, the flanges of the back plate and cooperating with the same to grip and hold a fabric between the plates. The front and back plates are spaced apart between the flanges and are extended at the top to form attaching portions.

Frederick W. Goedeke, Evansville, Ind. Spring Lock.—The present invention is designed to provide a spring lock adapted to be employed on boxes and various other receptacles, with suitable provision for enabling the same to be easily sealed. The spring lock comprises a casing, a spring-actuated catch pivoted at its lower end within the casing and provided at the top with an engaging head arranged exteriorly of the casing, said catch being also provided at an intermediate point with an operating arm extending through the casing, and a top keeper having a depending portion to engage with the head of the catch and provided with an opening for exposing the catch.



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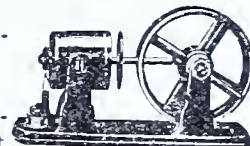
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## MORE ABOUT TRADE-MARKS.

In the February issue of the AGE, we printed an article from the *Bulletin* of the U. S. Trademark Association of New York City, submitting the views of the Association on the existing law and practice in the Patent Office with respect to the registration of trademarks, and we commented editorially on the article in question and expressed our hearty approval of the same. Particularly did we commend the suggestion that the administration of the trademark registration law should be removed from the Patent Office and placed in the hands of the Department of Commerce and Labor. It seemed to us that the suggestion was the best we had seen on that subject, and it struck us as rather singular that at the time the trademark law was amended, no one had ever thought of transferring the administration of the trademark law from the Patent Office to the Department of Commerce and Labor. Perhaps it was thought that the law was made so plain and liberal in its provisions that no further trouble might be expected. At any rate, now that it has been demonstrated that the Patent Office cannot properly administer the trademark law, and that in its practice it confounds the patent law with the trademark law, it seems that the time has arrived when the business of the registration of trademarks should be transferred to another bureau of the government, and particularly to the bureau with which trademarks are more directly associated.

At the time the first trademark law was passed in 1870, there was no Department of Commerce and Labor, and it no doubt appeared then that the Interior Department was the proper one to consider and pass upon appli-

cations for registration. Since the Department of Commerce and Labor has been created, and it is peculiarly within the purview of the Secretary of Commerce and Labor to stimulate commerce, and since trademarks are so directly associated with and vitally affect commerce, both at home and abroad, there is believed to be good reason for effecting the transfer as quickly as possible.

The Patent Office is complaining today of the congestion in its records and because of lack of room. The removal of the trademark branch of the Patent Office to the Department of Commerce and Labor would seem to be an important step towards relieving the congestion, aside from the fact already pointed out that the transfer of the business would be in the interest of trademark owners.

A writer in the Trademark News has taken up the cudgel in behalf of the Patent Office. We have not the time nor the space to set forth in detail his reasons, but we note that he agrees with the U. S. Trademark Association that the trademark rules should be revised with a view to making contests less expensive by eliminating the Interference Division in the consideration of interferences, permitting appeals directly from the examiner of trademarks to the Commissioner of Patents, abolishing the printing of testimony and briefs, and providing more competent legal assistants in the trademark division.

It seems, however, to be true that the average business man does not understand that special knowledge is necessary to fit an attorney to pass on matters affecting trademark rights and trademark law. He assumes that any patent solicitor, whether a practicing attorney or not, in the ordinary sense of the term, is competent to advise him with respect to a question involving the most valuable asset of his business, namely, his trademark rights. As stated "in the course of time trademark owners will learn to have competent advisers concerning such property." This, however, will come only when the business man has learned to distinguish between trademarks and patents. He will never be able to do this as long as they are associated together in the U. S. Patent Office. The best thing to do is to disassociate them by removing the trademark division from the Patent Office, and making it a bureau of the Department of Commerce and Labor. Then, and then only will trademarks be viewed at their proper angle as an aid to commerce in stimulating business.

At present there is a notion that a trademark right is akin to a patent right. We have often heard business men refer to "patenting a trademark." Indeed, we recall an instance where a practicing attorney who was supposed to possess some knowledge on the subject, referred to a trademark as being "patentable." Examiners of the Patent Office are called upon every day to pass upon the question as to whether or not a certain invention is a patentable improvement over the previous patents issued in the same class. Put that same examiner in the trademark

division, and assign him to the task of acting upon applications for registration, and he is quite apt to view the differences between a trademark disclosed in an application and some trademark citation, from the same narrow view point from which he has previously considered patent applications.

While the suggestion to transfer the business of registering trademarks from the Department of the Interior to the Department of Commerce and Labor appears radical, and it may take some time to effect the change, as the Patent Office will wish to retain this as a branch of its bureau, we hazard the prediction that the time will come when manufacturers and business men generally, will demand that the change be made, irrespective of the wishes of the officials.

## THE PATENTEE'S BURDEN.

While it is a well understood principle of the patent law that the grant of the patent affords *prima facie* evidence of its validity, it is very evident from the decisions of some of the courts that this presumption rests lightly on the judgment of the court. Patents are too often declared invalid for seemingly trivial causes. It is thought that the courts should stand back of the patentees and try, if possible, to uphold the patents, rather than to seek some means to defeat them.

It has been often stated, and the statement is true, that a patentee never knows he has a patent until after it has passed through the ordeal of litigation. He may have a document bearing the seal of the Patent Office, but he can never be assured that the patent is what it purports to be, a protection to him for a period of seventeen years in the exclusive right to make, use and sell the invention, until he has had occasion to obtain the judgment of a competent court. After the patent has run the gauntlet of the defendant's objections, the efforts to show the invalidity of the patent through a host of patents alleged to be anticipations, and an equal number of alleged prior uses, not to speak of the other technical details urged by the defendant, the court's final decree is that the patent is valid and infringed. Then indeed the patentee has reason to congratulate himself, for not until then does the patent document possess a tangible value. Before then it had a speculative value, but the decree of the court gives the patent a standing before the world that it did not previously possess. It is now a patent which infringers must beware of, for with the decree of the court behind it, the patentee may go into any Federal court in the United States and ask for a preliminary injunction against any other infringers whom he may find.

After having secured the decree of the court that the patent is valid and infringed, the case is referred to the

master of the court for an accounting of profits made by the infringer. It has always seemed to us that the complainant, after his proof of infringement has been supported by the court, should be given every advantage in showing his claim of damage. This is not, however, true of the actions of the courts. A case which has been recently brought to our attention indicates how uncertain it is that a suit for infringement will result in any profit to the complainant, outside of the decree of injunction.

In the case of the American Street Flushing Machine Company vs. St. Louis Street Flushing Company reported in 192 F. R., p. 121, the court sustained the validity of the third claim of the patent, and the case was referred to the master of the court to ascertain the damages and profits to be assessed against the infringer. The master reported no evidence of damages, but the profits which had been made by the St. Louis company amounted to over \$19,000, and he recommended a decree accordingly. Upon exceptions being taken to the master's report, the court reduced the award to \$1, holding that there was not sufficient proof of the amount of profits realized from the manufacture and use of the particular nozzle device upon which alone the patent stood, but that the profits assessed related to the manufacture and use of an entire street washing wagon and appliance. In other words, the court placed the burden of proof on the complainant to show the profits realized by the defendant and ascribable to the particular device covered by the patent. It was impossible for the complainant to advance such proof. Hence, only nominal profits were assessed against the defendant.

It appears to us that this decision increases the burden of the patentee to an uncomfortable extent, and shows anew the difficulty of collecting damages from an infringer in an infringement suit.

## SWINDLING PATENT SALES AGENTS.

This subject has been discussed so often in the columns of the AGE, that it would seem to have been worn threadbare; but it appears from reports we receive, that it cannot be too frequently mentioned.

There is a man in Newark, N. J., who writes to each patentee whose name is published in the Patent Office Gazette, advising him that there is a demand for just such an invention as his in Europe, and that if foreign patents are obtained through himself, he will endeavor to dispose of the same, leading the inventor to believe that it is only a question of getting a foreign patent in order to effect a sale. Relying upon this implied promise to procure the patent and sell the same, an inventor we know of employed the Newark, N. J., party to apply for and secure a German patent. The patent was obtained in due course, or what appeared to be a patent; but when he broached the subject of selling the patent, the agent had lost



all interest in the transaction. He could not be induced to make the slightest effort to find a purchaser for the patent. Indeed, it was never his intention to make any effort to sell the patent. The offer to find a purchaser for the patent was made simply as a pretense to ensnare the inventor.

The procuring of foreign patents is a favorite method of swindling inventors. While in some instances, because of the world wide use of an invention, or because of its manifest utility, or its basic character, foreign patents may be looked upon as a wise venture, it is a fact, nevertheless, that in many instances they result in great loss to the inventor.

As a further instance of how even patent attorneys will try to deceive inventors, we have recently had our attention called to a case where a patent attorney was employed to secure a patent in Mexico, and instead of securing what is known as a definite patent, which runs for twenty years, the attorney applied for and secured what is known as a provisional patent, which runs only a year, and which is in effect nothing but an application for a patent, and is not a patent for any effective purpose. The paper furnished by the attorney to the client as a patent was simply a typewritten copy of the specification in Spanish, a copy of the drawing and a receipt showing that an application for patent had been filed. Yet the inventor thought that the paper was a patent issued by the Mexican Patent Office, and because of his unfamiliarity with the Spanish language, it is possible that he would have retained this impression for all time, if the attention of another attorney who knew what a Mexican patent should embrace, had not been called to the matter.

We are desirous of obtaining all the information possible about the swindling practices of either patent sales agents or patent attorneys, and should be glad to ventilate the same in our columns, either under the name of the correspondent conveying the information, or editorially. We must, however, have the detailed facts supported by correspondence, &c., and not mere assertions or charges. In other words, we must know that what we are printing is a fact and not the mistaken conclusion or the delusion of the writer of the article. We believe we can help other inventors in this way by exposing certain practices and methods which from experience have been shown to be fraudulent. We hope that we will have a prompt response from the readers of our paper to this request.

#### Duralumin.

A new alloy, very light and strong, has been discovered by the chemist to a firm of English shipbuilders. With the coming of the aeroplane there has been an increasing demand for a metal which should combine the strength and toughness of steel with the lightness of aluminum, which are qualities invaluable for many other purposes, provided that the metal will not rust or corrode when exposed to the

weather. The new metal, which has been given the name duralumin, is only slightly heavier than aluminum, while it is as strong as ordinary steel, and can be rolled into sheets or drawn into wire. These qualities have not been commercially produced hitherto, and the new alloy will no doubt be extensively used in future where conditions demand the special features mentioned.

#### Novelties in Pipes.

A practical novelty for smokers is reported from Africa, where pipes made from the calabash have come into general use. The African calabash, it may be explained, is a tree locally called monkey bread, with soft wood and bark adapted for ropes. Smokers who use pipes made from this tree declare that it gives a softness of flavor unequalled by any other material. The plant requires a hot and dry climate, and the gourd-like end of the fruit forms an appropriate shape for pipes. It colors like meerschaum and takes a high polish. About twenty thousand of these gourds have been bought for shipment to the United States.

Another novelty is a cigar smoking machine, that is being used in the government laboratory that tests the constituents of tobacco. Heretofore, when an expert wished to test a cigar, he had to smoke about a dozen and strike an average. But now two smokers smoke just alike. The machine, on the other hand, can smoke a thousand cigars without varying the least bit in the processes of consumption. The puffs are all of the same length, the suction (caused by a siphon pump) is exactly the same, and there are no disturbing movements of the cigar during the operation. Several cigars are smoked at once. The object is to determine whether the tobacco used in the cigar burns evenly, how the ash holds together, and other details showing the chemical constituents and general properties of the different kinds of leaves.

#### Black Diamonds.

The arbitrary nature of our standards of adornment is shown by the fact that whereas the diamond is highly prized when it is white, and even more highly in the rare cases when a colored one is found—green, blue or yellow—the black diamond meets with no favor. These are of pure carbon, and are harder than the white diamonds—in fact they are about the hardest of substances. It is true that they are not transparent or brilliant, and the color might be considered against them: but these same drawbacks have not prevented the black pearl from being a favorite of fashion.

The term "black diamonds" is sometimes applied to the coal which is burned in our furnaces, but the real black diamond is among the greatest curiosities of the mineral kingdom. They are without crystalline form, and are found in irregular pieces ranging in size from half a carat to several hundred carats. They are not only black in color, but are sometimes grey or dark brown. Another singular thing about them is that they are found in only one place

in the world—a small section in Brazil, not more than 225 miles square in area. Their origin is a scientific enigma.

Black diamonds, while not valued as ornaments, play an important role in the industrial world. Being not only harder but tougher than their white brothers, they are of value for many mechanical purposes, and particularly for boring with diamond drills. The tips of the drills are studied with these bits of carbon, and when the bores are deep the pressure is so great that the gem diamonds would be crushed in the process: but the carbon resists this continued pressure and slowly eats down into the rocks. In this work the carbon is set in circular pieces of soft steel or iron called bits, and these bits are connected with tubing. Armed with these black diamond teeth, the drills push their way down under severe pressure to a depth of five or six thousand feet, cutting through the hardest kind of rock.

Black diamonds are expensive, the price being over \$80 a carat and showing a tendency to advance. Usually eight stones are placed in each drill. If each diamond weighs only three and a half carats, the total cost would be upwards of \$2300 for a single bit.

#### Making Earth.

It might be supposed that there was enough earth on the crust of this planet to obviate the necessity of making more, but as a matter of fact, plentiful as it is, and common as it is, just how it was made still remains a mystery. And that is one of the problems that the Geophysical Laboratory, a branch of the Carnegie Institution of this city, is seeking to solve. If man can create organic life, after the methods demonstrated by Loeb and others, why can he not create inorganic matter?

As to how earth was made, geologists know that in the beginning the world was a mass of heated vapor, which gradually cooled until the surface began to freeze. The crust thus formed grew thicker, and by its greater weight and greater contraction pressed more heavily on the cooling interior. Wherever a weak spot existed in the crust, the still liquid contents of the interior broke through, giving, as they hardened, kinds of rock different from those composing the original crust. It was a kind of science about which science knew little, hence the present researches. An effort is being made in the laboratory to reproduce, as nearly as possible, the enormous temperatures and pressures used by nature. These almost surpass the imagination. Our stoves are lined with a kind of rock which easily withstands white heat. But in nature's furnace all rocks were melted. Platinum, long regarded as the metal requiring the highest heat for melting, can be reduced in quick lime vessels. Iridium, one of the new metals, requires 5,000 degrees F. for melting, and osmium requires a still higher temperature. But even at this tremendous heat there are a number of minerals which remain solid. Among

these are lime, magnesia and alumina, which require the almost unthinkable heat of 6,000 degrees. But if this temperature were doubled, there would not be reproduced the heat which the earth probably reached at one time and which the sun has today. There is no means of producing such a temperature artificially.

Electricity offers the only means by which a heat capable of melting all rocks and minerals, can be attained. It is only necessary to generate sufficiently large quantities of electric current, and to provide equipment for concentrating it. The chemically pure elements of the rocks will first be made, and the forces playing a part in their formation will be measured: then the manner in which they combine to form rocks—their stability, their behavior under water etc., will be examined. It is intended to reproduce volcanic action. In volcanic eruptions, large quantities of steam are given off by the boiling lava. The earth's surface in the neighborhood is changed, and the minerals separated by the volcanic steam are very different from those made by the normal elements. Immense pressure as well as immense heat must be used in reproducing these conditions on a small scale. It is intended, if possible, to wrest from nature her secrets in the formation of precious stones: to find out how iron is formed, and how copper and gold: why diamonds are found only in certain forms of earth and why they are so rare; why the same ingredients in some cases crystallize as rubies, and again as sapphires or as ordinary emery stones.

Already there has been discovered a method of manufacturing quartz glass in quantities. Formerly it was impossible to produce more than small amounts of this glass, and the old methods of production were most tedious. But it was found in the laboratory that if an electric furnace could be so constructed that a pressure of five hundred or more pounds to the square inch could be exerted on the melting mass, quartz could be produced in large quantities.

#### Carrying a Locomotive on Cables.

A recent issue of *Popular Mechanics* has on its cover a striking illustration of a locomotive being conveyed across a 300-foot chasm by means of a cable. The giant hands that are refashioning the surface of the earth at man's bidding do something more than pile up heaps of rock in river courses to divert the streams, or tunnel through hills. Recently it was necessary to carry a locomotive from one side of the Rio Grande River to the other, in connection with the construction of a dam. To run the engine around on rails would have taken a long time. So the power that has been trained to exert itself at the twist of a switch was called into play, and it picked up the engine and carried it over. A cableway of steel ropes had been stretched across the stream to transport material. The engine, which weighs 20 tons, was equipped with slings, and these were attached to the travelers on the cable, and it was quickly put down on the other side.



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 Tobacco-stripping machines, Device for removing gum from cutters of, M. Deiller  
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 Tongs, Casing, W. G. Jackson  
 Tool feeding device, Pneumatic, B. C. Sanderson et al.  
 Top, G. P. Schmidt  
 Torch, Acetylene-gas, O. H. Skinner  
 Toy and game device, P. W. Kohloff  
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 Transom operator, E. E. Bell  
 Transom operator, C. F. Hanington  
 Trees, Treating discolor or decayed, L. C. Dickenson  
 Trimming machine, H. Spuhl  
 Trousers-waistband, J. J. Marx  
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 Tube-cutting machine, G. W. Beadle  
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 Tube-rolling apparatus, R. E. Brock et al.  
 Tumbler-finishing machine, J. J. Denning  
 Turbine, Hydraulic, E. Oesterlen  
 Turbine holder, A. V. Shull  
 Twisting-frame stop-motion device, T. A. Boyd  
 Type-writing machine, T. L. Knapp  
 Type-writing machine, R. H. Strother  
 Type-writing machine key and type-bar operating mechanism, J. Alexander  
 Type-writing-machine ribbon-operating mechanism, J. Alexander  
 Vacuum producer, Injector, F. Kenney  
 Valve, S. W. Bonser  
 Valve and horn, W. H. Eynon  
 Valve, Explosive-engine, W. C. Elrod  
 Valve, Flush, E. J. Bloom  
 Valve for hydraulic presses, Automatic pressure-controlling, W. P. Bottendorf  
 Valve gear for power hammers, J. Hamilton  
 Valve gear for steam engines, N. Gray  
 Valve, Piston, F. A. Bartram  
 Valve-spring compressor, A. Petersen  
 Valve, Unloading, C. R. Houghton  
 Vaporizer, Hydrocarbon, H. M. Conner  
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 Vehicle chock, J. B. Harrison  
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 Vehicle wheel, T. T. Chaloner  
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 Vencer box, O. C. Fenslon  
 Vessel, Mechanism for controlling the position of the direction lever of a motor-driven, A. Winton  
 Vulcanizer, Electrically-generated steam, A. C. Hulbert  
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 Washing machine, R. H. Hoyt  
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 Water heater, G. T. Hickmott  
 Water jacket, H. C. Holthoff  
 Weighing apparatus, G. Jones  
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 Wheel lock, C. E. Bridges  
 Whiffletree, O. S. Jackson  
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 Windmill, J. F. Young  
 Window, R. B. Hartsfield  
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 Window lock, J. W. Crossley  
 Window lock and ventilator, Combined, J. E. Miller  
 Window-screen hanger, O. G. Smith  
 Work holder, L. E. Whiton  
 Wrapping machine, Candy, J. T. Williams  
 Wrench, M. J. St. John  
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Adding and listing or recording machine, A. I. Gancher  
 Advertising device, G. E. Francis  
 Aeroplane, Balancing, G. Indorante  
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 Air purifying and humidifying apparatus, G. C. Derby  
 Anchor, S. P. Birdsey  
 Anchor, E. R. Merrill  
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 Annealing box, F. Cordes  
 Anti-light cut-out, C. L. Bundy  
 Automobile driving mechanism, C. M. Clark  
 Automobile frame, G. H. Jones  
 Automobile hood lock, F. C. Miller  
 Automobile power brake, G. J. Clayton  
 Automobile side curtain, G. W. Scott  
 Automobile wheels, Inner tube for, D. W. Harris  
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 Axle mounting, Antifriction, C. Paridy  
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 Bab lock, Hand, J. Ritter  
 Baker's pan, E. F. and H. A. Lockwood  
 Balancing of rotatable bodies, Apparatus for the, J. F. Metten  
 Ball, L. Wermeling  
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 Ballot box, M. A. Heinrich  
 Barrel or receptacle, J. H. Killian  
 Basket, E. C. Black  
 Bath tub, H. W. Fischer  
 Bath tub, Folding, F. H. Russ  
 Bearing, Adjustable, J. R. Blakeslee  
 Bearing, Axle, J. T. Broach  
 Bearing, Machine-table-spindle, E. P. Bullard, Jr.  
 Bedstead corner fastener, R. Mainker  
 Beet topper, J. M. Caraway  
 Belt-tightening means, G. Nealy  
 Beverag-holding and dispensing device, J. Vergano  
 Binder for sheet music, &c., W. C. Richard  
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 Boot cleaner, A. M. Fairfield  
 Boring machine, H. L. Hollis et al.  
 Bottle, Non-refillable, W. A. Stattmann  
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 Bottle, Non-refillable, W. H. Bock  
 Bottle, Non-refillable, W. Christopher  
 Bottle receptacle, Self-locking milk, M. Hobin  
 Bottle stopper, C. D. Davis  
 Box for candy and similar articles, C. P. Hodgson  
 Boxes with closures, Apparatus for providing, C. F. Jenkins  
 Bracket, A. Eklund  
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 Broom holder, C. B. Ebling  
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 Brush, Fountain, F. E. Beardsley  
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 Brush, Reservoir, A. Tompkin  
 Brush, Shaving, S. K. Avery  
 Bulfinch articles of sheet material, Machine for, F. A. Thurston  
 Building block, F. Buchartz  
 Building construction, Metal, M. J. McMartin  
 Bundle-tying machine, C. M. Sonney  
 Burner, F. L. Kittredge  
 Burner, J. L. Landry  
 Butter-cutting machine, W. H. Robinson  
 Button, Collar and cuff, M. E. Blatchley  
 Cabinet, Portable, A. H. Schaefer  
 Calcium, phosphamid, Producing, S. Peacock  
 Calculating machine, H. Cordt  
 Calculating machines, Motor-drive for, O. Thime  
 Camera shutter, Photographic, G. J. Dickson  
 Canteen, A. M. Moffat  
 Car chair, C. C. Taylor  
 Car chair, Reclining (2 pats.), C. C. Taylor  
 Car, Cinder, L. F. Kuhn  
 Car complying, B. Zuckerman  
 Car door, Dumping, J. M. Rohling  
 Car-door hanger, R. L. Pridfoot  
 Car, Mine, W. Lloyd  
 Car or carriage for use with cycles or motor cycles, Folding and detachable, O. F. Reeves  
 Car-stake fastener, O. F. Reeves  
 Car-underframe, Railway, C. T. Westlake et al.  
 Car-wall construction, Box, J. H. Weisbrod  
 Car wheel, S. P. Bush  
 Car wheels, Making (2 pats.), S. P. Bush  
 Car-window screen, C. G. Morgner  
 Cars, Vent for tank, C. R. Harris  
 Carburetor (Reissue), P. Bustard  
 Carburetor, Speed-regulating, J. F. Twigg  
 Card-punching and embroidering machine, R. Zahn  
 Card, Sample, B. F. Stenz  
 Card system, Assignment, J. W. Stevens  
 Card system, Employment calendar, W. H. Walker  
 Carriage, Collapsible (2 pats.), H. Holt  
 Casing elevator, W. W. Wilkinson  
 Cash register, W. H. Muzzy  
 Cash register, E. S. Church  
 Cash register, J. P. Cleal

Cash register, F. K. Fassett  
 Cast-iron blast heater, K. Meier  
 Casting apparatus, R. Gosser  
 Cattle-staking device, R. L. Lee  
 Cement mixer, F. C. Horn  
 Cement-tile machine, Hand or power, E. A. E. Laage  
 Chain, Electric, W. H. Riess  
 Chain hook, Safety, P. M. Beard  
 Chains, Manufacture of extensible, E. Burkhardt  
 Chair seat, J. H. B. Rhea  
 Chairs, couches, &c., Brace for, E. L. McKee  
 Check-controlled apparatus, J. B. Kaighn  
 Chimney, S. Heath  
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 Chock block, L. L. Tyler  
 Churn, J. B. Sellman  
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 Chute and locking device therefor, Fuel, E. Kleinknecht  
 Circuit controller, S. P. Hull  
 Clamp, H. A. Haskell  
 Clasp, W. D. Eastburn  
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 Cloth cutter, H. A. Meyer  
 Cloth-steaming machine, H. Moritz  
 Clothes rack, F. D. Pelletier  
 Clothes washer, S. P. Foreman  
 Clutch, C. S. Smith  
 Clutch, E. H. Haney  
 Clutch for navigational sounding machines and the like, A. Lietz  
 Clutch, Friction, C. Seybold  
 Cock, Ball, H. W. Theis  
 Cock, Electric gas, T. J. Little, Jr.  
 Coil former, R. Varley  
 Coil-making apparatus (2 pats.), R. Varley  
 Coiler-making machine, W. J. Pine  
 Coin-handling machine, F. L. Sattley  
 Coin-packaging machine, F. L. Sattley  
 Coke, Manufacturing and purifying, W. S. Simpson  
 Coke oven, Horizontal, E. Hohmann  
 Collar and shirt securing device or fastener, J. Boivin  
 Collar, Horse, E. D. Hale  
 Collar-shaping machine, W. K. Hatler  
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 Cooking utensil, E. Berthold  
 Coop, Metal collapsible chicken, C. Petersen  
 Copying apparatus, Letter, E. A. Klaber  
 Corn-husking machine, S. German  
 Corset-fastening, B. Sokolow  
 Cotton picker, G. Batenschoen  
 Counterweight, Compensating, L. Atwood  
 Cover fastener, E. W. Stull  
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 Doll head, J. A. Manning  
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 Drinking fountain, J. Hall, Jr.  
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Oil press.....L. Hoffmann  
Oil-testing apparatus.....P. Wendt  
1,1-dianthraquinonyl 2,2-dialdehyde bodies  
and making such compounds.....M. H. Isler  
Ore crusher.....M. F. Williams  
Ore feed mixer and distributor.....L. T. Sicka  
Ore feeder.....H. C. Behr  
Ore feeder.....T. Sutton  
Oscillator, High-frequency.....A. A. Jahnke  
Overshoe retainer.....J. A. Yates  
Oxidizing ferrous to ferric solutions.....  
A. McKechnie et al.  
Packing case.....W. F. Atwood  
Packing-case lids, Means for fastening.....  
E. A. Matthias  
Packing case, sheet-metal.....J. H. Killian  
Packing gland.....J. Hampson  
Pail and cover, Milk.....A. F. Schneider  
Paint remover.....G. F. Sayres  
Paper-blank-feeding machine.....  
E. E. Claussen et al.  
Paper-cup machine.....E. E. Claussen et al.  
Paper cutter.....H. R. Mainzer  
Paper-feeding machine.....F. G. Nind et al.  
Paper-folding machine.....F. G. Wind et al.  
Paper-roll holder.....G. F. Kearney  
Paper-slitting and winding machine.....  
P. Hellberg  
Paper substitutes for hot-embossing pur-  
poses, Manufacture of metal foil.....  
F. C. Wickel  
Pen-filling device, Drawing.....S. B. Allen  
Percolator.....I. and S. Geffer  
Phenolic condensation products, Forming.....  
J. W. Aylsworth  
Phosphorus from mineral phosphates.  
Producing.....F. S. Washburn  
Physical developer.....A. Hamilton  
Picture apparatus, Motion.....C. F. Jenkins  
Pillow-sham holder.....H. B. Ryeroff  
Pin.....M. G. Norton  
Pin-tumbler lock (2 pats.).....P. F. Augenbrann  
Pincers, Lasting (2 pats.).....W. and A. W. Huck  
Pipe and conduit bender.....J. L. Anderson  
Pipe carriers, Foundation top for.....  
W. J. Fauth  
Pipe cleaner.....A. J. and L. G. Yogerst  
Pipe elbows, Machine for making sheet-  
metal.....F. Bruno  
Pipe hanger.....W. A. Bowers  
Pistol with fixed barrel, Recoil-loading.....  
P. Mauser  
Pistons, Device for removing water from  
heated.....W. Schmidt  
Planters, Timing mechanism for.....  
I. L. Dempsey  
Plate lifter.....H. H. Hall  
Plow.....L. Stephens  
Plow, Motor.....G. E. Harrison  
Plow, Motor.....A. A. Waite  
Plow, Motor.....C. C. Delin  
Pneumatic carrier.....R. Meier  
Pneumatic cleaner.....E. M. Barnes  
Pneumatic wheel.....A. and J. Burfoot  
Pneumatic wheel (2 pats.).....J. M. and R. R. Dennis  
Polishing hood.....L. E. Sadler  
Potatoes in order to obtain both a cattle  
food and a proteid, Treating raw.....  
H. Gumpel  
Power, Machinery for the hydraulic trans-  
mission of.....H. D. Williams  
Power plant.....W. C. Meadows  
Power-producing plant.....F. C. Bell  
Power-transmission mechanism, Electro-  
magnetically-controlled.....A. Sundh  
Pressure gage for spraying-tanks.....A. J. Tyler  
Printing composition, Relief.....I. D. Hnribut  
Printing, Relief.....J. D. Hurlbut  
Printing-machine inking attachment.....  
H. C. Gammeter  
Projectile lifting and transporting appa-  
ratus.....J. A. Essberger  
Propeller, Feathering.....A. M. Akerman  
Propulsion, Marine.....P. Peterson  
Propulsion of vessels, Turbo-electric.....  
E. Thomson  
Propulsion, Turbo-electric ship.....E. Thomson  
Pulley-crowning apparatus.....R. H. Bowen  
Pump coupling, Pneumatic-tire.....R. F. Hersey  
Pump, Double spiral.....T. O'Connor  
Pump or motor, Rotary.....J. W. Tygard  
Pump, Screw-propeller.....F. Marburg, Jr.  
Pump, Vacuum.....G. Staunton  
Pumping apparatus.....F. J. Lukins  
Rail-clamping plate.....W. L. Myers  
Rails, Machine for working on compound.....  
J. Noll  
Railway, Aerial.....H. M. Procher  
Railway block system, Automatic.....  
C. W. Baldwin  
Railway braking device.....P. Besta  
Railway-rail clamp for metallic ties.....  
P. M. Johnson  
Railway rails and metal beams, Means for  
coupling.....C. P. Ackerman  
Railway tie.....F. C. Ancius  
Railway-tie-drying apparatus.....W. F. Goltra  
Railway-tie plate and rail fastener.....  
A. O. McDonald  
Rolling mill, Drawing.....P. J. J.  
Roller, Poultry.....A. B. P.  
Rotary drier (3 pats.).....S. W. J.  
Rotary engine.....C. H. H.  
Rotary engine.....O. S. J.  
Rotary engine.....S. W. J.  
Rotary engine.....C. F. J.  
Rotary explosive engine.....S. H. J.  
Rotary motor.....E. H. J.  
Rubber footwear, Manufacture of.....  
M. C. C.  
Salts, Manufacturing oxygen.....  
G. F. J.  
Sample case.....B. M. V.  
Sashes, Swinging stop device for sliding.....  
L. Fontana  
Saw and the like, Cutting-off.....G. Gorton  
Saw, Band.....M. A. Froney et al.  
Saw handle, Detachable.....H. L. Smith  
Saw set.....J. H. Devini  
Sawing machine, Cold.....C. A. Hirth  
Scale, Registering.....W. H. Mazy  
Scale stock rack, Adjustable.....  
C. W. Worthington  
Scales or the like, Fixture for comput-  
ing.....H. A. Hanz  
Scow for transporting gravel.....G. W. Jackson  
Scow for transporting gravel.....T. C. Jackson  
Scraper attachment.....L. L. Parr  
Screw driver.....G. B. Mullen  
Scrubbing machine.....A. Stumpf  
Sealing and stamping machine, Envelope.....  
J. E. Lederman  
Seamer, Double-end can.....C. Leffler  
Search-light projector.....E. A. Edmonds  
Self-leveling table.....H. Hartley  
Service motor operated by liquid for con-  
trolling mechanisms.....A. Balloco  
Settling machine.....C. D. Scott  
Sewing clamp.....N. A. Griner  
Sewing machine.....N. De Long  
Sewing machine.....F. Baker et al.  
Sewing machine for finishing buttonholes.....  
J. Kiewicz  
Sewing machine lamp support.....E. Schaak  
Sewing machine thread-cutting attachment.....  
R. L. Coley  
Shaft coupling.....T. J. Hudson  
Shaft coupling.....H. Rnthardt  
Sharpener, Lawn-mower.....M. Johansen  
Sheaf loader (2 pats.).....D. A. Stewart  
Sheet metal drawing and shaping appa-  
ratus.....H. G. Carlson  
Shingling gage.....C. K. Brown  
Shock absorber.....G. D. Yates  
Shock and loose-grain loader.....H. J. Hanson  
Shoe latch.....B. Brynteson  
Shoe pull strap.....W. S. Parry  
Shoe, Rubber.....J. T. Crowley  
Shoe-shining device, Hand.....S. C. Clow  
Shower bath, Portable.....A. H. Masters  
Side-sill bracket.....H. M. Pilager  
Signals, Track attachment for switch.....  
G. H. Rice  
Signaling apparatus for hospitals.....  
W. M. Perry et al.  
Silo.....W. C. and B. A. Uline  
Singeing machine.....T. Allsop et al.  
Sink-frame bracket.....W. J. Daly  
Slag, Disintegrating molten.....J. G. Bergquist  
Sled attachment.....S. O. Arnold  
Sleep-prolonging device.....H. M. S. Bullock  
Sliver guide.....O. L. Owen  
Snap hook.....J. B. Baxter  
Snell fastener.....P. H. Kiersy  
Speed-controlling device.....B. G. Nelson  
Speed finder for moving bodies.....  
C. S. Stenworth  
Spike.....A. M. Harding  
Spindle support for spinning, twisting and  
like machines (3 pats.).....G. W. Farnham  
Spouting concrete, grain, &c., Device for.....  
J. L. Waller  
Spraying device.....W. L. and R. C. Gregg  
Spring.....W. L. Bliss  
Spring casing, Vehicle.....L. U. Kuhn  
Spring-fastening device.....J. Schade, Jr.  
Spring wheel.....F. W. Brown  
Sprocket wheel clip.....W. L. Kissel  
Stabilizing mechanism, Automobile.....  
R. B. Koskul  
Stake press, Multipurpose.....  
J. A. T. J.  
Stamp affixer.....J. A. T. J.  
Staple-forming mechanism.....E. P. Shadden  
Starch, &c., Treating.....H. C. N. J.  
Station indicators, Operating device for.....  
W. B. Hill  
Steam and vacuum trap.....J. E. L. O. J.  
Steam-driving system.....J. F. Mott  
Steam generator.....F. L. B. J.  
Steam generator, Solar.....T. F. Nichols  
Steering device, Automatic.....J. Y. Jam  
Sterilization of water by ozonation, Ap-  
paratus for effecting the.....E. L. Joseph  
Stop-motion device.....W. O. Aldrich  
Stop motion, Duplex.....W. O. Aldrich  
Street sweeper.....M. Goldstein



Strain gage or apparatus for the measurement of the deformations of materials under strain.....H. C. Berry  
Stringed instruments, Exercising device for.....D. E. Hartnett  
Stropping machine.....C. E. Dmu  
Sulky runner attachment, Track.....B. F. Cayford  
Superheater boiler.....A. D. Pratt  
Swab.....H. D. Rapson  
Swath turner or hay collector.....J. and C. J. Bamford  
Switch-supporting and controlling mechanism, Electric.....J. S. Thompson  
Talking machine.....C. P. Carter  
Tamping machine.....J. W. Bradley  
Tap or faucet, Water.....C. B. E. Delsue  
Telegraph system.....B. F. Thompson  
Telephone attachment.....M. M. Reynolds  
Telephone, Coin-prepayment substation.....G. W. Lorimer  
Telephone exchanges, Apparatus for automatically connecting up the subscribers of.....J. Peticky  
Telephone instrument.....M. M. Reynolds  
Telephonic apparatus.....E. A. Graham  
Temperature recorder, Electrical.....M. E. Taylor  
Temperature-regulating device.....A. J. Kercher  
Thread-cutting mechanism.....H. W. Oster  
Tide motor.....D. Taylor  
Tiling.....J. M. Wells  
Time indicator and alarm, Electric.....F. Hope-Jones  
Tire cover, Spare.....H. A. Sallop  
Tire for automobiles or other vehicles, Spring.....G. A. and W. M. Krantter  
Tire patch.....R. E. Gregg  
Tire, Vehicle resilient.....H. D. Hart  
Tires, Expandable core for repairing.....E. H. Trump  
Tires, Inner-tube guard for pneumatic.....S. Goodman  
Tires, Repair or reinforcement of.....T. E. Cann  
Tobacco box, Plug.....B. F. Miller  
Tobacco cutter.....L. L. Cooper  
Tobacco pipe.....F. R. Schumacher  
Tokens or counters, Apparatus for delivering.....C. Wigg  
Tongs for handling crucibles in glass and like furnace practice.....J. B. Loubriat  
Tool, Combination.....B. S. and S. Gross  
Tool, Hand.....E. A. Hoffmann  
Tool holder for tool and like grinding machines.....T. Lumsden  
Toothpick holder.....G. A. Rine  
Toy.....A. Capra et al.  
Toy.....E. M. Erdmann  
Toy carousel.....G. F. Barlow  
Track-raising machine.....J. L. Fox et al.  
Track switch, Monorail.....H. Sawyer et al.  
Traction elevator.....A. Sundh  
Train-controlling and signaling system.....E. Wittlake  
Transit.....S. J. Heinrich  
Trap poison receptacle.....C. E. Penn et al.  
Trimming machine.....E. H. Perry  
Trolley.....J. Para  
Trolley-wire hanger.....W. A. McCallum  
Trolley wires, Clamping car for.....C. J. Hixson  
Truck frame and journal box.....L. G. Woods  
Truck, Tongue.....F. H. Stajgr  
Truing-up gage.....G. W. Freeman  
Trunk-packing device.....F. L. Cloman  
Tube-bending machine.....F. Brantigan  
Tubing closure.....F. B. Upton  
Turbine compressor or pump for elastic fluids.....F. Lawaczek  
Turbine engine.....W. A. Scott  
Turbine installation, Steam.....E. Brown et al.  
Turbine, Internal-combustion.....E. F. Hopkins  
Turn table.....D. S. Landstra  
Type-writer support.....J. M. Bainer et al.  
Type-writing machine.....L. B. Wyckoff  
Umbrella, Contractible.....S. M. Sargent  
Valve.....P. S. Dunn  
Valve (2 pats.).....C. F. Jenkins  
Valve, Ball-cock.....E. W. and C. V. Webster  
Valve, Blow-off.....T. M. Eynon et al.  
Valve device, Automatic pressure-controlling.....J. W. Dawson  
Valve, Float-operated.....J. W. Wall  
Valve for injectors, Intake.....M. G. Fries  
Valve gear.....S. Rosenzweig  
Valve gear.....E. L. Robertson et al.  
Valve gear.....H. J. Glissman  
Valve gear, Locomotive.....W. G. Landon  
Valve gear of apparatus for conveying liquids or gases.....R. Rudenberg et al.  
Valve, Locomotive sander.....A. Beasley  
Valve, Tank.....H. W. Hancock et al.  
Valves, switches, &c., Time mechanism for operating.....C. Priehard  
Vaporizing or gasifying hydrocarbon liquids, Device for.....E. B. Benham  
Vehicle brake.....C. H. Blomstrom  
Vehicle, Dumping.....S. C. Lancaster  
Vehicle, Motor.....J. E. Plew  
Vehicle runner attachment.....F. R. Dickey  
Vehicle-steering mechanism.....S. H. Kennedy  
Vehicle-top antirattler.....O. Eckberg  
Vehicle wheel.....A. Jaeger  
Vehicle-wheel spring.....C. G. Smith  
Vending apparatus.....H. B. Cooley  
Vending machine.....W. G. Moffet  
Ventilator.....F. L. Hunt  
Vessel, Marine.....A. C. Dam  
Vest, Reversible.....W. Pressman  
Wagon for fermented liquids, Delivery.....L. Schottgen  
Wall for buildings, Cast.....H. J. Schubert  
Washbasin.....E. F. Hine  
Washing machine.....G. W. Dungan et al.  
Water heater.....L. A. Korb  
Water motor.....H. B. Goodhart  
Weed cutter.....J. F. Schurle  
Weed exterminator.....C. Matejowicz  
Welding plant.....N. J. Anderson  
Wheel attachment, Traction.....O. Olson  
Whip rack.....N. F. Alston  
Whistle.....R. L. Hofman  
Wind shield.....F. Knight  
Winding machine.....A. D. Scott  
Winding roller.....R. T. Axe

Wire-drawing machine.....E. H. Carroll  
Wire-spoked wheel.....J. V. Pugh  
Wood, Preserving.....M. F. Goltra  
Wrapper, Merchandise.....L. A. Waters  
Wrapping machine.....E. J. Loewy  
Wringer.....C. J. Marth  
Yoke stop, Neck.....W. Knight  
Zinc and lead from mixed sulphides, Separating.....C. A. L. W. Witter  
Zither, Keyed.....F. Schmidt

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Adding machine.....H. C. Peters  
Adding machine.....G. Koenig  
Advertising device.....C. A. Hibschman  
Aeroplane control.....W. A. Bartholomew  
Agricultural implement.....O. W. Peterson  
Agricultural machine.....G. H. and J. C. Webber  
Air coupling, Automatic.....J. C. Wright  
Air-flushing apparatus.....A. Priestman  
Airship.....W. P. Harris  
Airships, Balloon for.....E. Roth  
Ammonia compressor and valve-operating mechanism therefor.....J. H. Denny  
Amusement apparatus.....T. E. Gregson  
Animal-cleaning device.....H. Tideman  
Animal-jaw puller.....H. L. Nash  
Animal trap.....W. Kanter  
Animal trap.....C. L. McAfee  
Antiskidding device.....R. J. Thiesen et al.  
Apparel, Article of wearing.....M. F. Goodman  
Armatures for dynamos and motors, Apparatus for winding.....F. N. Pike  
Associating and binding machine.....R. C. Seymour  
Astrakhan fabric, Artificial.....N. Garfinkle  
Automobile lock.....H. J. and E. H. Richner  
Automobile top slide.....A. E. Smith  
Automobiles, Friction speed gear for.....W. E. Trufant  
Axle, Vehicle.....C. H. Taylor  
Baby walker.....C. A. Kohl  
Bait, Artificial (Reissue).....F. W. Breder et al.  
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Balls, Making base.....F. H. Perry  
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Bearing.....M. L. Hoyt  
Bearing and retainer therefor, Ball.....R. F. Schnitz  
Bearing for journal boxes, Roller.....R. Carresse  
Bed, Hospital.....G. A. Wilson  
Bed pan.....A. Houdard  
Beet picker.....E. A. Cadwallader  
Beet-fopper and plow.....E. A. Cadwallader  
Belting, Power-transmission.....L. K. Tuttle  
Binder.....D. A. Galantiere  
Binding device.....F. C. Rheubottom  
Blower-unloading device.....J. G. MacLaren  
Boat, Convertible.....W. Offenburger  
Boat saddle.....E. Gummell  
Bobbin stripper.....W. B. Leathers  
Book, Manifolded sales.....W. Greig  
Book, Manifolded sales (2 pats.).....E. K. Bottle  
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Bottle, Non-refillable.....B. G. Vosburgh  
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Bottle stopper.....F. H. Foster  
Box.....B. L. Behrendt  
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Bracelet.....C. Tromper  
Bracket.....S. W. Parsons  
Brake.....J. D. Smith  
Brake-block holder.....A. R. Corn  
Bridge, Bascule.....F. J. Benni  
Bridges, Means for operating bascule.....C. L. Keller  
Broom.....W. M. Christopher  
Bucket.....J. B. Hutchins  
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Burner supporter.....A. G. Sherman  
Button and cutter, Combination cuff.....L. Kalina  
Cabinet, Account.....B. C. Maxwell  
Cabinet for trousers.....J. Fennell et al.  
Calculating instrument.....W. W. Craig  
Calendar.....S. K. Jensik  
Can-opening device.....E. L. Oberg  
Caps, Making winged.....O. Zerk  
Car and traction mechanism, Monorail.....H. H. V. Koelle  
Car construction, Pump.....J. M. Coleman  
Car, Pump.....F. S. Ingoldsbey  
Car end frame.....H. M. Pfleger  
Car end underframe.....C. S. Shallenberger  
Car, Mining.....L. G. Helmick  
Car-platform bulging mechanism.....C. T. Westlake et al.  
Car-roof construction.....J. J. Kelleher et al.  
Car, Sleeping.....F. Brackett  
Cars, &c., Door for grain.....E. Josef  
Carbureting device.....I. Lavender  
Cards, Playing.....O. N. Ritzman  
Casket, Burial.....P. W. Sievert  
Casting machines, Device for filling centrifugal.....W. H. Millsbaugh  
Cattle guard.....C. Martin  
Chain, Key.....Wachenheim  
Chains of entangled solder wire links, Making metal.....A. Bazner  
Chair.....J. A. and J. P. Barker  
Check hook.....A. F. Cyfers  
Checking device.....H. H. Bottom  
Cheese server.....E. P. Dauton  
Cherry-seeding machine.....R. McDowell  
Clocks and the like, Balance for.....W. P. Hinkelman  
Clutch.....L. J. Campbell  
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Coaling system.....D. A. Lee  
Coin-controlled mechanism.....C. J. Zirbel  
Collar.....S. Harris  
(Now by marriage S. Rosentover.)  
Collars or cuffs, Receptacle for.....G. B. Kelly  
Commutator machines, Means for regulating polyphase.....J. L. La Cour  
Compressor, Variable-capacity.....B. V. Nordberg  
Concrete and cement mixer.....N. Johnson  
Concrete and other plastic material, Machine for moving and depositing.....W. G. Wilson  
Concrete structures, Metal reinforcement for.....D. Maxwell  
Concrete walls, Constructing.....I. Randolph  
Condenser arrangement.....A. R. Bullock  
Controller.....A. J. Loguin  
Cork-cutting machine.....A. Bogdanffy  
Cork-shell-cutting machine.....A. Bogdanffy  
Corner-post fastening.....A. Wolf et al.  
Cue.....F. A. Torrey  
Cultivator attachment.....F. H. Coates  
Culvert.....R. B. Hibbs  
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Current-controlling apparatus.....E. L. Gale, Sr.  
Cuspidor for cars and the like.....L. Doszpoly  
Cutter-head and mechanism for actuating the dies thereof.....V. R. Koontz  
Cutting block.....J. B. Gilbert  
Cutting tool.....A. A. Shapiro  
Damper regulator.....H. Munzer  
Darning ball and handy implement, Combination.....H. C. Cook  
Derriek guys, &c., Means for coupling.....P. B. McCaghey  
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Die.....J. S. Duncan  
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Dioxydianiline arsenobenzene and making same, Derivatives of.....F. Stolz et al.  
Display case.....J. A. Dinkler  
Display stand.....E. E. Schmitt  
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Door mounting, Sliding.....A. Voigt  
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Draft-elevator.....H. C. Huff  
Draw-bar construction.....F. L. Cole  
Driving mechanism for motor vehicles, Friction.....J. M. Gilstrap  
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Drying clothes and other articles, Apparatus for.....H. Lofquist  
Duplicating machines, Motor-drive for.....H. C. Gammeter  
Dust guard for wheels.....R. Stock  
Dust settler.....M. J. Baker  
Dyeing vegetable fiber.....G. C. Dorr  
Dyestuffs of the anthraquinone series and making same, Vat.....M. Hessenland  
Electric-current indicator.....F. Kratz  
Electric-current transformer.....E. C. Westcott  
Electric-current variations, System for amplifying.....C. D. Lindridge  
Electric machine, Dynamo.....M. E. Thompson  
Electric switch.....J. E. Wood  
Electrical switching and testing device.....M. R. Hutchinson  
Electrolytic meter.....H. S. Hatfield  
Electromagnetic separator.....H. Stein  
Electromagnet switch.....J. C. Smith  
Ellipsograph.....B. A. Ball  
Embroidery machines, Card-punching device for automatic.....J. J. Kuecht  
Engine starters, Distributor for automobile.....C. A. Wulf  
Engines, Gas-making and charge-forming apparatus for internal combustion.....E. W. Stevens  
Engines, Gearing for traction.....J. T. and G. Metcalfe  
Engines, Starting ignition for internal-combustion.....G. Honold et al.  
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Farm gate.....A. M. Doyle  
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Feed device, Hand-operated.....C. R. Hare  
Fence post, Metallic.....E. C. Kahn  
Fence structure.....D. A. Goodrich  
Fertilizers, Preparing land.....C. H. Bash, Jr.  
Fibrous material, Machine for breaking and cleaning.....W. A. and A. M. Shely  
Filaments, Manufacturing carborundum.....F. C. Thomas  
Filing device for account slips, &c.....C. W. Zimmer  
Film-reel-fastening device.....S. M. Aughinbaugh  
Filter.....C. E. Ballow  
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Fleshing machine, Belt knife.....F. J. Perkins  
Floor construction for buildings.....F. B. Gilbreth  
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Flue expander.....J. B. Anderson  
Fluid-applying device.....L. Lavigne  
Fluid-meter attachment.....H. P. Westcott  
Fluid-pressure governor.....J. F. Menning  
Flushing device, Closet.....A. A. Sutherland  
Fly trap.....S. Krueger  
Flying machine.....H. Van Wie  
Flying machine.....C. Babb  
Flying machine.....S. O'Neill  
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Folding box, Staple-lock.....J. J. Bradley  
Folding elevator.....S. F. Welch  
Forging machine.....S. Baumgartner  
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Fruit-pulp machine.....C. J. and A. Miller  
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Furnace regulator.....J. M. Beech  
Gage.....C. A. Hirth  
Game, Mechanical ball.....G. S. Curtis  
Gas burner, Incandescent.....O. Wiederhold  
Gas burners, Heating device or attachment for.....P. W. Kohloff  
Gas mantles, Machine for use in the manufacture of incandescent.....J. I. Robin  
Gear case.....F. P. Maize  
Gear-ronghing machine.....F. L. Eberhardt et al.  
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Gearing, Variable-speed-transmission.....R. H. Gerard  
Glass-blowing machine.....C. J. Nolan  
Glass, marble, and like material, Machine for cutting holes in.....A. Foppiano  
Glue and mucilage receptacle.....O. Winkelmiller et al.  
Grain-elevator cleaner attachment.....J. A. Nelson  
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Hair pin.....K. Schenk  
Hammer, Pneumatic.....G. L. Robertson  
Hammock, Couch.....W. H. Harrison  
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Corn busker..... J. Wolfe  
Corn tipper..... J. Hunt  
Cornstalk cutter..... A. P. Banschier  
Coneb, Extension..... J. A. Cobb  
Crane, Balanced safety..... G. B. Garst  
Crank-pin connection..... E. C. Bennett et al.  
Crate for carrying bottles..... C. J. Franks  
Crates, Retainer for partitions of.....  
G. C. D. Miller  
Crimping machine..... L. F. Weber et al.  
Cross tie and rail joint, Combination  
flexible..... G. W. Ayres  
Current-conducting wires, Bracket for.....  
A. Kleinheesselluk  
Current distributor and timer..... J. M. Smith



- Current rectifier, Alternating...C. F. Fayer  
Curtain and drapery support...O. S. Gage et al.  
Cuspidor and washbasin, Combined...A. C. Clark  
Cuspidor, Dental...A. C. Clark  
Cutting and ornamenting sheet material,  
Device for...T. Lund  
Cutting device...F. J. Schnorr  
Dental fillings, bridges, and the like, Ap-  
paratus for making...D. S. Mackenzie  
Derrick for erecting poles...E. Howland  
Die blank...F. E. Wells  
Die stock...R. B. Tewksbury  
Dish washer...H. S. Nesbitt  
Disinfecting composition containing oil,  
Solid...C. Ellis  
Display apparatus...H. F. Bauer  
Display apparatus...F. Janacek  
Display rack...F. P. Murphy  
Door catch...A. F. McDonnell  
Door check and closer...D. J. Hurley  
Door, &c., lock...R. Woolsey  
Door lock, Sliding...R. U. Gibson  
Draft-rigging...G. O. Lewis  
Draft-rigging, Friction...J. F. O'Connor  
Drawing board...R. J. Welton  
Drawing-room fountain...F. Chone  
Dust shield...N. C. Nevin  
Drill-rod grab...J. W. Young  
Drill stand...B. H. Locke  
Drills, Double-disk attachment for...  
O. G. Rieske  
Drilling die...A. C. Zierath  
Drinking cup...J. F. Brady  
Drinking cup, Collapsible...H. W. Bowman  
Dry-pan screen...J. F. Morgall  
Dumping fork, Adjustable...G. Heedwell et al.  
Duplex-piston engine...G. K. Gjerde  
Duplicating machine...H. G. Liebenthal  
Duplicating machine...H. C. Gammeter  
Dust-collecting system...W. E. Allington  
Dye, Violet cotton...A. L. Laska  
Dyeing-vat-closing device...C. P. Delahunty  
Dynamic suspension, Truck construction  
for...P. Kennedy  
Dynamic suspension, Truck construction  
for...P. Kennedy  
Egg carrier and delivery tray, Combined...  
H. H. Cummer  
Electric apparatus, Cooling vapor...  
P. H. Thomas  
Electric battery...F. L. White  
Electric cut-out...T. E. Murray  
Electric machine, Dynamo...J. C. Macfarlane et al.  
Electric-meter protective casing...  
T. E. Murray  
Electric switch...C. E. Hain  
Electrical apparatus...C. J. E. Waxbom  
Electrical distributing system...  
L. C. Marburg  
Electrode for electric furnaces, Carbon...  
B. Redlich  
Electromagnetic mechanism, Contact for...  
R. A. Fessenden  
Electromotor-controlling system...C. Kramer  
Embankments in water, Structure for use  
in building...E. S. Johnson  
Embroidering machine, Jacquard...R. Zahn  
Embroidering machine, Shuttle...R. Zahn  
Engine-starting device, Explosive...  
H. L. Meeder  
Engines, Safety cranking device for in-  
ternal combustion...F. Dion  
Envelope...W. Mackie  
Esters of the hydrocinchona alkaloids,  
Manufacturers of...H. Thron  
Evaporator, Sea-water...W. Weir  
Excavating apparatus...H. H. Harris  
Extendible table...J. Sedaj  
Eyeglasses...S. J. Clulee  
Fabrics, Turned-under edge-binder for...  
A. F. McCollum  
Fan attachment...L. N. T. Guertin  
Fasteners, Making socket members of...  
J. P. Williams  
Feed bag, Animal...H. R. Haskell  
Feeder and exerciser, Automatic...J. Wallace  
Feeder, Stock and poultry...  
W. M. Logsdon et al.  
Feeding trough, Portable horse...F. L. Meyer  
Fence post...C. A. Buskirk  
File, Document...A. Pardoe, Jr.  
Filing machine (2 pats.)...S. W. Gooch  
Films, Examination, treatment, or the  
like of liquid...C. V. Boys  
Fire-alarm-box mechanism...C. F. Klein et al.  
Fire escape...G. W. Aune, Sr.  
Fire escape...M. Fink  
Fire extinguisher...C. Synder  
Fire extinguisher...C. H. Robsch  
Fire-hose cabinet...G. W. Noble  
Fireplace...G. L. Perrine  
Fireproof door...J. A. Wheeler  
Fireproof of slabs or boards, Forming...  
J. A. Wheeler  
Fish-handling mechanism...F. D. Cleveland  
Float, Ball...N. Moritzky  
Flue expander...G. R. Rich  
Fluid-treating apparatus...J. R. Hickox et al.  
Flume...H. H. Winter  
Flume gate...H. H. Hozsett  
Fly trap...M. F. Hunt  
Flying machine...G. Sturgess  
Flying machine...E. Pollak  
Flying machine or airship...  
D. P. McLaughlin  
Folding machine...F. G. Nind et al.  
Forming characters out of sheet material,  
Apparatus for...A. Wilkinson  
Foundation...E. Frankignon  
Fruit-grading machine...J. B. Hart  
Fuel preparing and feeding apparatus...  
R. Pitcairn  
Furnace front...J. H. Hume  
Furniture clamp...H. J. Fuhs  
Fuse, Electric...T. E. Murray, Jr.  
Fuse for projectiles...H. B. Strange  
Fuse switch...A. V. A. McHarg  
Galvanic battery...E. G. Dodge  
Game apparatus...A. Reibstein  
Game carrier...R. Wilson  
Garment...F. P. Zurn  
Garment supporter...L. A. Myers, Jr.  
Gas burner...J. H. Martindale  
Gas engine...H. R. Van Vleck  
Gas generator...T. H. Armstrong  
Gas generators, Means for feeding car-  
bide to acetylene...L. Bader  
Gas lighter...C. Brussel  
Gas separator...L. A. Hoffman, Jr.  
Gas-washing machine...H. E. Theisen  
Gaskets, Making...J. Merritt  
Gear-cutting machine (Reissue)...H. Bilgram  
Gear teeth, Hob for finishing worm...  
R. J. Smith  
Gearing...J. C. Olsen  
Gin-saw-gumming apparatus...E. O. Nevels  
Glass plate, Reinforced...K. Eisele  
Glass plates and other articles, Safety-  
gripper for manipulating...P. C. A. Robail  
Globe and fixture, Self-binding...  
A. G. and W. J. Wray  
Glove stretcher...R. Goldman  
Golf club...A. E. L. F. P. Rivers  
Governor, Marine-engine...T. Jackson  
Grain, Apparatus for removing snout from...  
M. Twedt  
Grain-washing machine...W. Bowlandson  
Grape juice and other fluids, Apparatus  
for landing...F. J. Walker, Jr.  
Grease cup...O. Zerk  
Grinding machine...G. I. Alden  
Grinding machine...J. E. Vogt  
Grindstone...J. Barnette  
Gripping device...E. R. Richards  
Gun sight...H. C. Raedel  
Guns, Adjusting the sights of...W. Konig  
Gyrometer...R. S. Richeson  
Gyrostatic mechanism...E. Paleke  
Hammer, Automatic...O. S. Hoover et al.  
Hammer, Rotary...R. and F. Harner  
Hammer and swing support...C. Corley  
Hand bag...J. Sims  
Hanger...E. Moore  
Harp...J. O. Varian  
Harrow-packing attachment, Disk...  
H. R. Adams  
Hat-pin-point protector...M. H. Miller  
Hat-pin safety tip...J. E. Hattran  
Hay press...D. J. Wolfe  
Hay-raking and cocking machine...  
H. Schneider  
Hay, stock, and fowl rack, Combined...  
L. Boldig  
Heat and motive power, Generating...  
D. L. Dresser  
Heat-resisting vulcanized fabric...  
W. H. Strickler  
Heater safety device...R. C. Claus  
Heel-finishing machine...J. Buckie  
Heel, Shoe...W. E. Stedman  
Heel, Shoe...B. Rosenberg  
High chair, Child's portable...F. Greene  
Hinge, Adjustable...N. W. Kellaway  
Hinge, Gravity...S. Frey  
Hoisting apparatus...C. Zetterlund  
Hod-extending device...B. H. Baker  
Hod or awning...W. T. Keiter  
Horn or whistle...E. B. Chapman  
Hose reel...R. L. Notman  
Hub for recording instruments, Chart...  
E. H. Bristol  
Hydrocarbon engine...G. A. Taff  
Hydrocarbon, Producing diethylene...  
F. Hoffman et al.  
Ice creeper...R. E. Maass  
Ice-making apparatus...S. R. Bell  
Ice-shaving machines, Feeding mechanism  
for...H. Smith  
Ignition machines, Interrupter for...  
O. Heins  
Incubator...C. E. Bonine  
Index device for step and repeat and  
other machines...L. J. R. Holst  
Inhaler...T. H. Butcher  
Inhaler and respirator...E. K. Hill  
Insulating cleat...R. Richards  
Insulating composition and making same...  
C. P. Steinmetz  
Insulator...J. W. Moore  
Insulator...G. A. Mead  
Insulator for rail joints...B. G. Braine  
Insulators, Wire holder for...  
A. J. Riefer et al.  
Internal-combustion engine...W. O. Barnes  
Internal-combustion engine...W. Wallace  
Internal-combustion engine...L. Ilmer, Jr.  
Internal-combustion engine...W. C. Westaway  
Intestine-cleaning machine...G. S. Billman  
Joints, Making leather...F. Rampichini  
Ketones, Manufactures of...J. Effront  
Knitting a full-fashioned blank for a  
stocking...K. Nebel  
Knitting machine, Circular...F. Wilcomb  
Knitting machine, web cutter, Circular...  
W. Raven  
Knitting-machine web holder...  
J. D. Hemphill  
Knob night lock...D. S. Ackerman  
Labeling device, Bottle...S. B. Goff  
Labeling-machine picker...F. O. Woodland  
Lace fastener, Shoe...T. A. Shawyer  
Lamp, Automobile radiator...D. W. Harlow  
Lamp burned...E. S. Taylor  
Lamp, Electric...F. L. Fowler  
Lamp, Minor's...L. Pezzuto  
Lamp, Self-extinguishing...C. T. Siebert  
Lantern globe...G. A. Macbeth  
Last...E. L. Goding  
Latch, Store-door...G. N. Mason  
Lath attachment...G. W. Safely  
Laundry wrap...F. H. Loveless  
Leather, Machine for forming ornamental  
indentations upon...F. F. Dorsey  
Lens-grinding machine...B. F. Clark  
Lenses and the like, Retaining device for...  
E. J. Madden  
Life raft...B. E. Matson  
Life-saving appliance (Reissue)...  
S. P. Edmonds  
Life-saving dress...W. MacDonald  
Lifting jack...A. Van Fleet  
Lighting device...R. E. Schneider  
Limb support...L. T. Smith  
Liquid-dispensing device, Automatic...  
A. Bertram  
Liquids, Apparatus for separating solid  
matters from...A. Muntzing  
Loading and unloading device...R. L. Morgan  
Lock...L. W. Fox  
Locking device for safe and vault doors...  
S. W. Fish  
Loom, Narrow-ware or ribbon...G. F. Hinchins  
Loom shuttles, Thread stripper for...P. Hunt  
Looms, Filling-thread-cutting mechanism  
for weft replenishing...E. H. Ryon  
Lubricator...F. P. Day et al.  
Lumber-patching machine...T. Robinson  
Magnetic separator...D. A. Griffiths  
Mail box...W. E. Davis  
Marker and rower...M. F. McKasty  
Masonry and reinforced-concrete struc-  
ture...D. B. Luten  
Match box...L. H. Rhoades  
Match machine...J. P. Wright  
Match printing, cutting and separating  
machine, Paper...H. W. Whelan  
Match unloader...W. H. Parker  
Measuring apparatus, Liquid...G. H. Gibson  
Measuring device...J. S. King  
Meat holder...E. A. Hand  
Mechanical lubricator...J. Thomas  
Mechanical movement...M. H. Agahan  
Mechanical movement...R. S. Brown  
Melting and soldering apparatus, Electric  
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Metal-atomizing apparatus...J. M. Neil  
Metal machine, Expanded...F. M. Whetstone  
Metal strips, Machine for uncoiling and  
straightening...M. M. Beeman et al.  
Metal-working apparatus, Clamp for elec-  
tric...E. Thomson  
Metal-working apparatus, Pressure device  
for electric...A. F. Rietzel  
Milk-cooling and bottling apparatus...  
W. A. Shephard  
Milk, Desiccating...E. Passburg  
Milk, Machine...B. M. Aslakson  
Mine-propping device...F. Nellen  
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for detonators which are used in shot-  
firing in...A. Price et al.  
Mixing machine...R. Tiedtke  
Molding machine...T. W. Hammond, Jr.  
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Monorail and truck...E. Giordano  
Mop...A. T. Channell  
Mop...W. H. Billings  
Mop holder...A. E. Westburg  
Mop holder and wringer, Combined...  
J. W. Krueger  
Motor...G. Wallin  
Motor-controlling device, Electric...  
P. H. Zimmer  
Motor-controlling mechanism...C. R. Pratt  
Motor-lubricating means...D. S. Waugh  
Motor starter...M. W. Hartsock et al.  
Mower and roller, Motor lawn...  
W. H. Coldwell  
Mower, Lawn...M. A. Stewart  
Mower, Lawn...M. Panowetz  
Mower, Motor lawn...W. H. Coldwell  
Mowing machine...A. J. Anderson  
Mowing-machine lifting attachment...  
F. Pinkert  
Mud guard...N. H. Schickel  
Music-roll spools, Head for...  
P. L. Sylvester  
Music rolls, Box for perforated...  
R. C. Harris  
Music turner, Sheet...G. F. Burmeister  
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Nut-racking device...H. C. White  
Nut lock...C. Hunter  
Nut lock...J. Dean  
Nut lock...J. M. Crowell  
Nut lock...G. Orbin  
Nut wrench, Axle...W. C. Kliber  
Ohmmeter...T. W. Bibb  
Oil burner...L. E. Ambrose  
Oil separator...F. J. Maywald  
Oiler, Shaft...F. R. Ashton  
Oiling attachment for brooms...O. C. Malone  
Ores, Treatment of...J. Irving  
Oxygen, Manufacturing...H. L. Doherty  
Packaging machine...C. F. Smith  
Packing means...G. P. Herrick  
Packing, Metallic...A. Christenson  
Padlock, Permutation...W. D. Watkins  
Pail, Milk...S. W. Moore  
Paint composition and making same...  
A. C. Horn  
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Paper-testing device...F. C. Blanchard et al.  
Paste jar...C. Puetz  
Pegging machine...O. Ashton  
Pencil case...G. V. Orban et al.  
Pencils, Card-case attachment for...  
A. B. Scott  
Permissive machine, Internal-combustion...  
L. L. Scott  
Perforating machine...T. A. McCall  
Phonograph...N. H. Holland  
Phonograph horn, Collapsible...G. Stiff  
Phonograph recording and reproducing  
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Phonograph reproducer...F. L. Dyer et al.  
Phonographs, &c., Means for controlling  
the time of starting...F. E. Thormeyer  
Photography flash-light apparatus...  
C. A. Goddard  
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Piano actions, Lock flange for...A. Stalb  
Piano, Horizontal...W. Siegel  
Piano players, &c., Valve for pneumatic...  
J. A. Weser  
Piano, Pneumatic...W. G. Betz  
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Pick...H. Martini  
Pin-pool board...F. C. Hobbs  
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Pine coupling...D. J. W. Murock  
Pine hanger...J. A. and J. H. Healy  
Pine joint...C. Westphal  
Pipe-threading tool...B. Borden  
Pipe threadless coupling...G. W. Kern  
Pipe wrench...W. J. Brightwell  
Pines, Tool for removing burs internally  
on...H. T. Merriam  
Planimeter...F. B. Williams  
Planter, Seed...J. W. Connell  
Plaster-board-machine cutting mechanism...  
L. M. Rader  
Pliers, Wire-bending...R. F. Coleman  
Plow...W. L. Paul  
Plow and seeding machine, Combined...  
O. R. Schmeling  
Plow point...J. Harrison  
Plowing apparatus...H. K. Bushong  
Plug, Wire terminal...C. E. Mowrer  
Pneumatic-despatch apparatus...T. Bemis  
Pocketbook and powder puff...A. Widrich  
Poison holder, Rodent...W. Larkin  
Poke, Animal...J. F. Cannon  
Pole changer...C. H. Roth  
Pope strap...W. Dawson  
Pounding-up machine...O. Ashton  
Power, Cleaning...E. W. Oldham  
Powder, Safety blasting...G. M. Peters  
Powdered material in cans or barrels,  
Apparatus for packing...  
H. A. Abjornsson et al.  
Power plant, Internal Combustion...  
L. Ilmer, Jr., et al.  
Power-transmitting mechanism...A. E. Osborn  
Preserve jar...D. M. Barr  
Preserving food products, Protectively...  
J. J. Fitzgerald  
Press, &c., guard...T. Kemper  
Pressing machine, Seam...J. Bernard et al.  
Pressure indicator...J. H. Wilson  
Printing cylinder...W. H. Banzett  
Printing plates, Mold for casting and  
finishing rotary...A. Egli  
Printing press...W. P. Allen et al.  
Printing-press bed movement...  
H. E. Goldberg  
Printing-press sheet-assembling mechan-  
ism...H. C. Schroeder  
Printing press, Sheet-fed intaglio...  
H. A. W. Wood  
Program holder...J. H. Minor  
Projectile...R. H. Quisling  
Pulverizing mill...J. C. Clark  
Pump and air compressor, Vacuum...  
R. A. Sallee  
Pump, Centrifugal air...G. Massip  
Pump construction, Scavenging...  
W. Schenker  
Pump for vacuum systems...H. B. Cornish  
Pump, Vacuum...A. Morawski  
Punching and eyeletting machine...  
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Pyrometer, Electric...H. E. Beighlee  
Race-course barrier and starting device...  
J. Hlada  
Radiators, Spring for supporting...  
H. G. Farr  
Radium ores, Treating complex...S. Radcliff  
Rail and frog brace and connector...  
B. C. Hardin  
Rail bumper...F. C. Mezger, Jr., et al.  
Rail fastener...A. C. Candland  
Rail fastener and support...H. P. White  
Rail fastener for metal ties...F. J. Schisler  
Rail fastening...S. E. Duff  
Rail-fastening device...A. C. Candland  
Rail joint...F. Venches  
Rail joint...C. Zeller  
Rail joint and nut lock, Combination...  
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Railway fastening device...J. W. Balb  
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Railway spike...J. F. Russell  
Railway spike...P. Krievacic  
Railway-spike lock...J. S. Edginton  
Railway switch...E. D. Brown  
Railway switch...J. Meany  
Railway tie...B. F. Siber  
Railway tie...J. A. Naylor  
Railway tie...J. W. Crouse  
Railway tie, Metallic...C. L. H. Dinkelbiller  
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Ram cylinder, Hydraulic...O. P. Bushnell  
Rat trap...M. Morawiecki  
Razor, Safety...J. A. Horton  
Razor, Safety...L. D. Saxton  
Razor, Safety...S. Adler  
Razor, Safety...A. Bemmerer  
Razor, Safety...C. W. Arnold  
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Receptacle-supporting device...O. P. Mason  
Refrigerator...F. V. Detwiler  
Refrigerator...A. E. Bosse  
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Refrigerator, Oyster display...C. Stollberg  
Refuse incinerator, Portable...  
A. E. Paul et al.  
Resilient wheel...W. F. Doll  
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Reversing mechanism...W. A. Mayhall  
Revolver (3 pats.)...W. W. Key  
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J. W. Schafer  
Rings, Means for casting finger...F. H. Cnrl  
Road engine...E. J. Vraalstad  
Rod clamp...R. C. Kleffman  
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Rotary engine...E. J. M. Madero  
Rubber composition...W. F. Beasley  
Rubber-extracting apparatus...F. Schfield  
Rug...A. F. McCollum  
Rug, Printing...A. G. Stevenson  
Sample case, Roll...E. B. Wright  
Sanitary cup...G. T. Reichenbach  
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folded sheet-metal...C. Stollberg  
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Saw clamp...W. R. Seaton  
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Screens, Insect-exit eyelet for...  
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Sea walls, &c., Forming...H. Bactz  
Seal fastening...G. K. Jessup  
Sealing metal vapor apparatus with mer-  
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Seed-corn box...O. L. Dunkelbarger  
Seeder, planter and fertilizer-distributor...  
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Separator...W. R. Morse



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Sewing machine, Shoe..... V. J. Van Horn  
Sewing machine, welt-trimming attach-  
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Shade and curtain bracket, Adjustable.....  
Shade holder, Window..... H. E. Wirebaugh  
Shade-roller-supporting device..... A. G. Harris  
Shank stiffener and filler, Combined..... J. W. Brewer  
Sharpening machine, Safety-razor..... W. H. Wood  
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Shears..... F. C. Hayes  
Sheet-metal battery used for producing  
an electrochemical bath for cleaning  
silver..... E. A. Hardy  
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Sheet, tent, and sleeping bag, Combined  
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Sidewalk light..... O. S. Pulliam  
Signal device..... F. L. Hughes  
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Silo..... J. C. Morrow  
Siphon..... H. C. Schoop  
Skins and hides for the removal of fat,  
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Skirt holder..... H. Dubbs  
Skirt marker, Skeleto..... J. D. Baird  
Slicing machine..... W. A. Lorenz  
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Smoke consumer..... A. Tomasini  
Smoke-consuming furnace..... C. W. Johns  
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Sole laying and leveling jack..... G. P. Van Wye  
Sole, Non-slipping..... E. Woodward  
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Sole-rounding machine..... E. N. Preble  
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Speedometer..... C. R. Pratt  
Speedometer and mileage indicator..... E. J. Eakin  
Speedometer recorder..... V. Frauk  
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Spool and implement holder..... F. Watzlawik  
Spout..... D. C. Williams  
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Spring trap..... S. W. Buereckliu  
Spring wheel..... M. F. Richardson  
Spring wheel..... T. P. Horgor  
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Square, Knockdown carpenter's (2 pats.).....  
Stacker, Pneumatic..... A. A. Harvie  
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Lamp, Flame arc.....H. G. Dyer  
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Leg, Artificial.....J. W. Hodge et al.  
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Paint or varnish remover.....C. Ellis  
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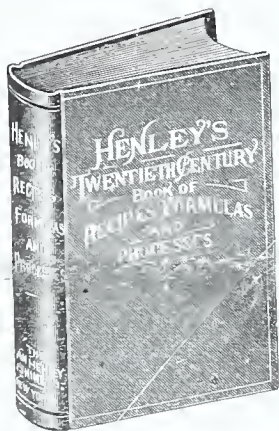
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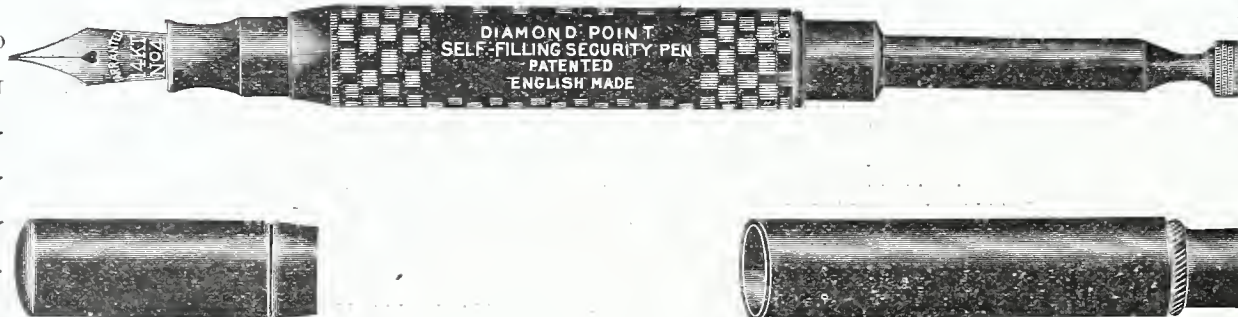
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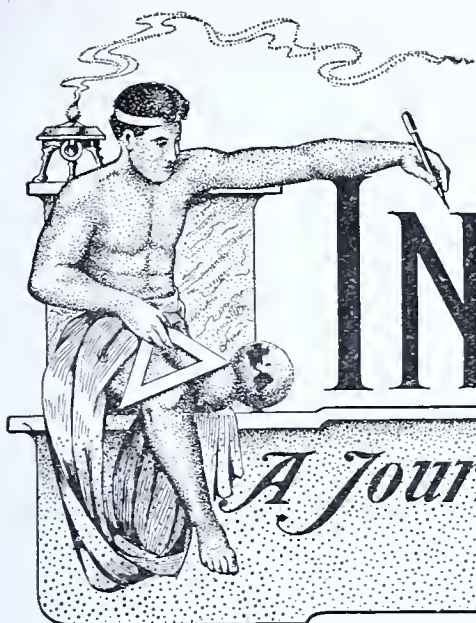
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## THE WENGERNALP ELECTRIC MOUNTAIN RAILWAY.

By FRANK C. PERKINS.

THE accompanying illustrations show the Wengernalp electric railway and equipment. The traffic is nearly a third of a million ton-kilometer, in summer the average weight of the train being 28.5 tons. In winter the traffic is light, amounting to 41,000 ton-kilometers, the weight of the trains being about 26 tons.

This railway is operated with a direct current of from 1,500 volts to 1,800 volts, differing from the low pressure electric lines of 500 volts, and from other mountain railways, which utilize largely three-phase alternating current equipments.

The direct current electric locomotives on the Wengernalp road are capable of hauling two cars with a seating capacity of 48 passengers each, at a normal speed of five miles per hour on a 25 per cent grade, and a train of three such cars at the same speed on an 18 per cent grade. When operating on a 25 per cent grade the electric motors develop about 300 horsepower, the total weight of the train being 33.49 tons, of which the locomotive weighs 16.15 tons, the two cars 10.6 tons and the 96 passengers 6.74 tons.

When operating with a train of three cars on a grade of 18 per cent, the electric motors develop 280 horsepower, the train weighing 42.13 tons, the locomotive weight remaining the same, the three cars weighing 15.9 tons, while the weight of the 144 passengers is 10.08 tons. The shortest curve on the line has a radius of 325 feet. The electric locomotive is 17 feet in length and 7 feet in height. The electric motors drive the locomotive through double reduction gearing; this being a rack railway. Each of the two motors on the locomotive has a normal capacity of 150 horsepower, operating at a speed of 750 revolutions per minute. The voltage of each machine is from 750 to 900 volts and they are connected in series, being supplied with current from the overhead trolley line at a pressure of from 1,500 to 1,800 volts.



FIG. 1.—WENGERNALP RAILWAY WITH STEAM LOCOMOTIVE.

The locomotive is supplied with both hand brakes and automatic brakes, which bring the train to rest in from  $2\frac{1}{2}$  seconds to  $6\frac{1}{2}$  seconds, according to the weight of the train, its speed and the grade on which it is operated.

The train is electrically lighted and electrically heated, about 20 kilowatts of electrical energy being required for heating the three passenger cars.

The maximum speed attained on this mountain railway is about seven miles

per hour, while a speed of five and a half miles per hour is attained on a grade of 15 per cent.

The construction of electric railways in these lofty altitudes is accompanied by many dramatic incidents. The source of power, it is true, is readily available from the torrents provided by the melting snows; but the high elevations present problems peculiar to this class of work.

One of the highest roads in the world is that leading to the Gornergrat, relatively only a short distance from the Wengernalp railway. The Gornergrat road, which is on the way to the summit of the Matterhorn, reaches a height of ten thousand feet. It took two years to build this road, although its length is inconsiderable, the prolonged period of time being largely due to the height at which the operations had to be carried on. From altitudes of five thousand feet up, there are practically only four months in the year when work on such a railway can be done. Nor was it possible, as is often done in such jobs, to use electric light and turn on a gang of men at night. After the line had been begun, work after darkness was forbidden, for the reason that visitors to the Gornergrat—which is a popular resort for tourists—might have their slumbers disturbed by the night operations. This unexpected obstacle might have led many contractors to give up the work in despair, so little progress was being made and so interminable seemed the labor. But in this instance the contractors determined not to let themselves be foiled by Nature. They built barracks for their workmen at a height of 6,300 feet, and concluded to carry on the work in winter. It seemed perfectly feasible to continue with the tunneling, at least, when the ground without was buried deep in snow and ice. The plan proved entirely successful. The barracks were made of wood, and each was large enough to hold sixty men.



They were built of heavy timbers and with double walls, and the space between was filled in with moss to keep out the cold and keep in the heat. Two large stoves were provided for each building, and they were kept burning night and day. By such means the men were kept in health and warmth throughout the long winter, and the

No fewer than eleven thousand men were employed on the line, and to their great satisfaction, the constructors saw the last stage begun before the summer was over and the chill of autumn had again begun to descend.

It is interesting to observe—as this was a new departure in railway construction—that no diminution in the



FIG. 2 —ELECTRIC LOCOMOTIVE FOR WENGIRNALP ROAD.

whole of the tunneling (quite an important part of the work) was completed before the expiration of the eight months that the frozen season lasts in those climates. In the spring the construction of the roadway itself was pressed forward, and though the engineers had to contend with snow drifts from twenty to thirty feet in depth, the work progressed rapidly.

#### Power Driven Plow.

Machinery has been successfully applied to many branches of farming, but so far it does not seem to have reached the plow. Various forms of automobile plows have, it is true, been exhibited, but for the most part they have been too elaborate and expensive for general use. On the great fields of the west it is practicable to have a steam or gasoline engine drag a dozen plows or harrows behind it, but for the ordinary use of the small farmer, something that would merely take the place of the horse was the pressing need. This seems to have been supplied in a device which is very little larger than an ordinary plow, but which has a small gasoline engine, similar to those employed on motorcycles, which acts as the motive power. This engine, which is a 2 cycle, 9 horsepower gasoline affair, is mounted between the handles and geared to two spiked drive wheels, each about twenty inches in diameter. The downward pull of the plow cutting its way through the soil holds the drive wheels to the ground, and the spikes prevent slipping. When the plow strikes a root,

power of the men to work had been observed until a height of something over 9,000 feet was reached. Above that elevation their health seemed to suffer somewhat. The electric power for the operation of this line was generated by the water from a glacier, which has the great advantage of supplying more, instead of less, when the hot weather sets in.

stump or large rock, the spiked wheels slip and the machine can be thrown out of gear instantly. It is then easily raised above the obstruction by lifting on the handles, the engine is thrown into gear again, and the plowing proceeds. It is of course understood that the operator walks behind the plow and holds the handles as in the old horse variety, but in all other respects, it is believed that it will offer an improvement over the latter. A number of attachments are provided, including turning points for breaking land, a seeder for planting corn, cotton and other seed crops; disk harrows, weeders, listers, etc., a spraying attachment and a mower cutting bar and rake. When not in use for any of these purposes, the engine may be employed for driving stationary machinery. It can be put on the market at a relatively low cost, and it is believed that it will be popular among farmers.

THE INVENTIVE AGE contains sound advice to inventors and patentees. For lack of such advice many have lost money. Subscription price, one dollar a year.

#### Singular Foods.

In these days of high prices for meats, it is interesting to note there are many products which foreigners regard as dainties, which are quite unknown to our tables. Seaweed, while not generally considered an article of diet, is eaten in Japan and other lands of the East, and even in certain parts of New England it has been used as food for eighty years. Along the shores of every continent and island there are to be found clusters of this product, which form the sustenance of fishes. The greatest marine forest extends from the Aleutian Islands to Terra del Fuego, and it contains tons of potential food for the world's hungry millions—more than is yielded by the wheat fields of all lands.

The sunflower crop is one of the most profitable in Russia, the seed forming a favorite food of the peasants. A good crop is worth \$20 an acre. Merchants salt the seeds, and at every street crossing of the provincial cities are stands and peddlars with baskets, selling the seeds to passers-by.

The gathering and preparation of Irish moss, which is a form of seaweed, is an industry along the coast of Massachusetts of such importance that it aggregates over \$30,000 annually.

The honey ant is esteemed a delicacy in Mexico. A large lizard is much sought by the natives in South America, not to speak of certain snakes, the taste of which resembles chicken. It is said that the ordinary rattlesnake makes very good eating, if one can only overcome his inborn prejudice. We are inclined to scorn the Chinese for eating rats and to denounce the animal as unclean, but at the same time we consume tons of that most loathsome of all animals, the pig. The common skunk, owing to its peculiar and offensive glands, will never be popular as food, yet its flesh is not only good but delicious, according to those who have had courage to eat it. Grasshoppers ground into meal make a dish that is said to be both nourishing and agreeable. That insects do not enter more largely into the food supplies of all nations is due partly to prejudice, partly to ignorance. Many a man has perished of starvation in a country where he could get no large game, when worms and various insects were at hand that might have saved his life.

Perhaps the most singular food is the larvae of a fly common in parts of California, and known as ephydra. This insect is found in such vast quantities in Lake Mono that it is washed up on the shores and collected by bushels. The water of the lake is curiously heavy and smooth, like oil, so that it resists ordinary wind and does not become ruffled. When the larvae begin to appear the Indians gather from far and near and scrape them up, dry them on cloths in the sun,

and then husk them by beating. They then present the appearance of grains of rice, and are said to be very nutritious. The Indians who eat them grow fat on this rich diet. Another kind of fly is eaten in Mexico, and the eggs of the same, when deposited on sedges, are used as food. A certain sedge is cultivated for the purpose, and when the eggs are deposited thereon, the sedge is cut and beaten over cloths, and the eggs collected and ground into meal. This, when baked in small cakes, is not unlike caviare in taste. The larvae themselves, disagreeable looking worms, are used as food.

The civilized man turns from such food as worms and insects with disgust, but it is well to remember that epicures in many countries are particularly fond of cheese when inhabited by the larvae of a common fly, and diseased liver of the goose is esteemed a delicacy on almost every table. The octopus, or devil fish, would offend the American palate, but the Italian and Portuguese eat it with avidity. The meat is white, and has the flavor of crab. We find the Chinaman selling eggs that gain in value with age, especially duck eggs containing ducklings ready to be hatched. Shark fins are in demand, also deer horns in the velvet. The nest of the swallow, with its embedded secretion of the mouth glands of the bird, is nearly worth its weight in gold in the Orient.

Seaweed, however, offers the best resources when our present food supplies fail. Sea anemone is stuffed and boiled by the French, and calls to mind crab or crayfish. Sea urchins of various species are also used, cooked in their covering, like an egg, and eaten with a spoon. There are fifteen thousand species of algae, and many of them are available as food in one form or another. Along the California coast quantities of seaweed known as red laver, are gathered by the Japanese. This stuff is cured, baled like hay, and shipped to Japan. The method of collecting it amounts to an important industry. Deep holes are made in the bottom of the bay, at low tide, by thrusting down through the water a conical wood frame, with two long handles. Into each hole is placed a bundle of brush, the ends projecting above the surface and serving to catch the spores that float abundantly in the water. These attach themselves to the twigs and grow so rapidly that in a few months they are ready for harvest. They are then washed, dried, chopped fine, and cooked in various forms.

Isinglass from seaweed is of great commercial importance to Japan. The weed that bears this product is obtained by divers, and the isinglass is pearly white, shiny and transparent. It is used in making jellies, soups and sauces. In cleanliness, as well as wholesomeness, it is superior to animal isinglass. It is also used for the sizing of textiles, the stiffening of the warp of silks, the clarifying of wines and beer, the making of molds for workers in plaster of paris, and in the manufacture of paper. It is employed widely as the culture medium in bacteriological work by scientific investigators.



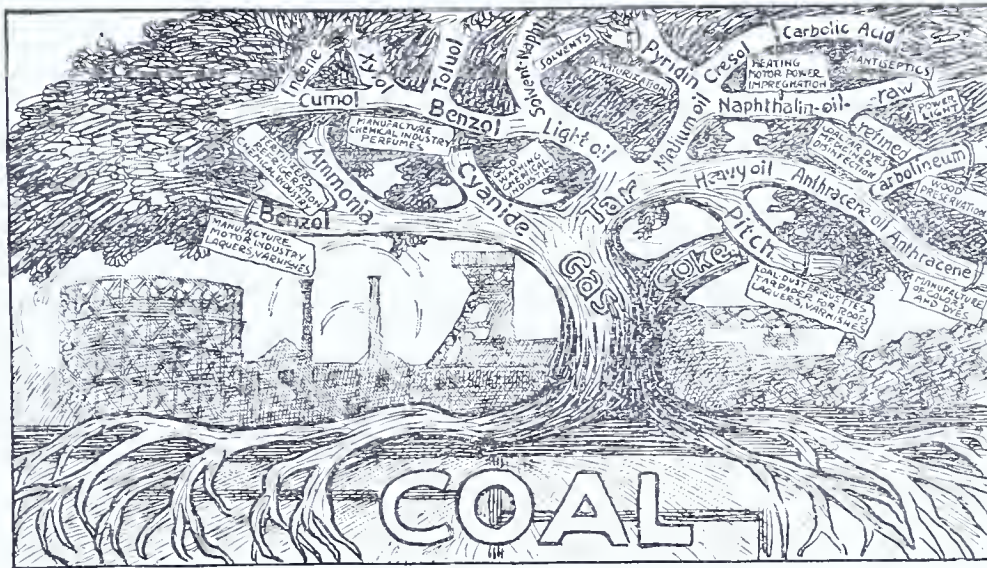
### A Gigantic Bridge.

The world has grown accustomed through the progress on the Panama Canal to tremendous undertakings, and the proposed bridge across the bay of San Francisco has received the less attention on that account. And yet this bridge will be over nine miles long, and part of it will rest upon ten piers six hundred feet in height. It is intended to facilitate the volume of traffic from the cities on the east side of the bay to the main center of industry. This is now carried by ferry boats; there are three lines from Oakland, Alameda and Berkeley, serving communities with an aggregate of a million people. Every morning thousands of commuters reach the metropolis in this way. Then there are three great transcontinental lines, with thousands of passengers, besides vessels for transporting cars bodily across the bay. The cost of carrying this vast volume of freight over the six miles of water is estimated at not less than \$11,000,000 per year, and it is attended by serious difficulties and delays, especially in bad weather. After the Panama Canal is opened the commerce of the city will be largely increased. Hence the plans for the bridge, which will run from Telegraph Hill to Goat Island, (which lies between San Francisco and Oakland) at a height of 180 feet above the water, allowing clearance for the highest masts that enter the port. The structure will be supported by ten wire cables, each of 20-inch diameter, and each capable of supporting 35,000 tons, which means that a single one of these could lift a modern battleship and still have strength to spare. Massive granite piers are planned for the promontories on Telegraph Hill and Goat Island, while the 600 foot piers will rest on bed rock in the channel. From Goat Island the bridge will run to the tide lands on the east shore, where the water is shallower and there are extensive mud flats. The piers in the channel involve the most difficult engineering problem, as the current is swift, and a steel caisson of unique design has been devised for them by Allen C. Rush, an engineer of California. It consists of a hexagonal structure, 150 feet high and tapering slightly from the base. It will be built with a series of interior shafts or tubes. They are to extend from the base of the caisson to the top, and when filled with compressed air will render the great structure buoyant so that it can be towed to the point in the channel where it is to be sunk, after the manner of a gigantic dry dock. Here the air in the tubes is to be released and the caisson allowed to sink gently into place. As it sinks into the mud at the bottom of the channel, the tubes will be opened, forming a series of shafts into which workmen can descend and excavate to bedrock, the weight of the caisson bearing it down as the mud and rock is removed. When the caisson is at rest upon its foundation these tubes will be filled with granite, making a solid base for the piers. Eight caissons of this type will be enough, as spans of 2,000 feet are projected.

To accommodate the huge volume of traffic, three floors will be provided, each with four highways, making twelve passageways in all, exclusive of the footways. The lowest floor will carry trains and the upper ones street cars, autos and other vehicles.

### WASTE OF COAL TAR PRODUCTS.

OVER a million tons of coal tar was recovered last year in Germany as a by product of the coke and gas industries. Ninety per cent of the industrial works of this kind in Germany are now made to yield such products, while less than twenty per cent do in this country. Here, for the most part, the coal tar is thrown away. What this means, says a recent number of *Literary Digest*, may be better understood by a glance at the part played by coal tar products in modern industry and domestic life. Foremost among these products are benzol, toluol, xylol, solvent-naptha, ammonia, and cyanids; next comes pitch, anthracene, naphthalene, oils—light, medium and heavy—and in further development etheric oils, perfumes and drugs. The illustration shows how these products spring from their sources. Ammonia is one of the most important of these branches. It is recovered in the form of sulfate and of sal ammonia. It is used in the manufacture of explosives and as a fertilizer.



"FAMILY TREE" OF THE COAL TAR BY-PRODUCTS.

Benzol is the mother substance of aromatic compounds and of dyestuffs. Purified toluol yields many dyes, and is used for medicinal preparations, etc. Cyanid has long been employed in gold washing. Raw tar and creosote are used to preserve wood and iron from dampness, decay, the attacks of insects etc.

From the arctic regions to the equator there is no longer any zone of earth in which tar paper has not come to be indispensable as roofing material. Tar is used to lay dust on roads, and as a binder for crushed stone. Pitch is extensively used at coal mines as a binder for fine coal, enabling it to be compressed into briquettes, thus transforming another waste product into a cheap fuel.

The oils obtained by distillation from pitch include acetone, phenols—used in making explosives—aromatic carbohydrates: naphthalin—used for dyes, also for preserving furs and woolen garments from moths, under the name of tar camphor—cresols, employed as disinfectants; pyridin, valuable for denaturing alcohol, and

many others. Anthracene oil represents the final fraction of coal tar distillation. The anthracene separates from the oil at a lowered temperature in the form of a greenish crystalline powder. It is oxidized into anthraquinon, which is the basis of the alizarin dyes.

It has recently been found that the wood of the beech, ordinarily unfit for railroad ties, is rendered usable by being properly impregnated with creosote. Beech forests are of little value commercially. Pine forests yield six or seven times as much, because of the greater value of the wood. But beech forests are necessary as "foster mothers" for more valuable timber, for which they prepare the ground. Creosote also has uses in medicine.

What the dye industry owes to coal tar sounds like a tale from fairyland. The energies stored in the coal by the sunbeams of former centuries are changed directly into substances that in the vividness of their colors, the charm of their fragrance and the

be forgotten that the field is not yet exhausted. Unknown possibilities lurk in the once despised and rejected mass of refuse that has proved so rich a mine. And eighty per cent of its output of this valuable substance the United States throws away.

### Blowing Stumps Out of the Land.

The difficult problem of getting stumps out of the land, especially in places where forests have been recently cut and the land is full of these obstructions, is being solved in a novel way on the Pacific Coast. They are simply being blown out of the soil, and this not by dynamite, but by the aid of air. The process consists of digging a portion of the earth away from the stump, starting a fire and directing a blast of air against the fire from a pipe connected to a blower, operated by a small portable gasoline engine. Even with an engine of only 4 horse power, the main pipe from the blower may have three or four branches, extending to as many stumps, and with larger outfits a considerable number of stumps are disposed of at once. One of the companies operating in the vicinity mentioned has a 50 horsepower engine, which is belted to a dynamo furnishing current to forty motor driven blowers. This plant can clear five acres per day.

### Experimental Wireless Stations.

A complete account of modern wireless installations for experimental purposes which comply with the new wireless law, has been published by Philip E. Edelman, of Minneapolis. The book was written to fill a gap in the literature on the art of wireless telegraphy. It is intended especially for experimenters—that body of voluntary workers who take up the art as an avocation and who are generally misnamed amateurs. It is intended as a guide to a rational study of the subject. It is believed that it will serve as a stepping stone to a serious preparation for high positions in the practical field. Wireless today offers opportunities perhaps not exceeded in any other trade.

Inasmuch as interference with other stations—innocent or wilful—has to a large extent hindered experimenters as well as commercial operators, the designs in this book are directed particularly to standard apparatus and stations of the same sharp tune wave lengths, which will not interfere with others. The author says in the preface that so far as he is aware, this is the first book in which standard designs are given. On account of the new law, experimenters are now forcibly restricted to this rational type of apparatus. There are eighty illustrations, and the little volume presents a condensed statement of the best modern practice.

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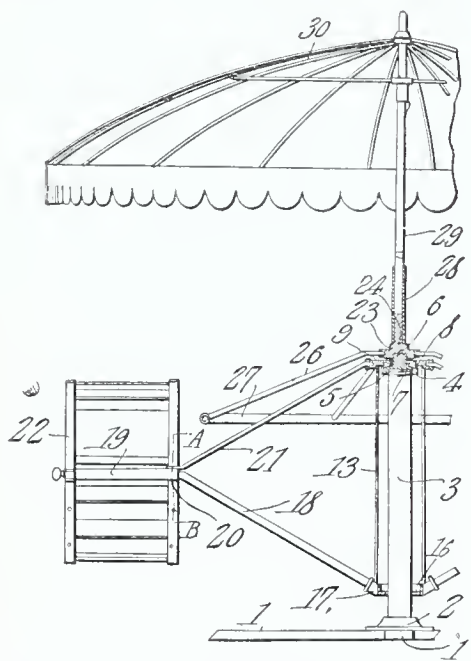


## CLEVER NEW PATENTS.

Roundabout.---Hand Car.---Combined Darning Ball and Handy Implement.---Feeding Mechanism for Ice Shaving Machines.

### Roundabout.

The popularity of the amusement device known as a merry-go-round, has led Arthur Warren Lyda, of Canton, Ohio, to invent a simple apparatus of this class which can be worked without the aid of machinery. It has the usual supporting standard, with a cap and raceway on which is a series of anti-friction rollers. A ring 9 has an annular raceway into which rollers project. The ring has sockets and ears, and from the latter run rods 13 which connect with the lower ring. This has an annular flange 16 extending round the standard but not touching it. Sockets 17 on the lower ring are located directly under the sockets of the ring 9. It is obvious that the two rings must rotate together about the standard, the flange 16 remaining always out of contact with the standard and the weight of the whole being supported by the anti-friction rollers 8. Braces run up from the sockets 17 to horizontal extensions 19, on which are sleeves attached to supports 21. These supports extend to the upper sockets and are secured there. The sleeves 20 are fixed to the seats of chairs which are carried by the extensions 19 and are designed to hold the persons riding in the roundabout.

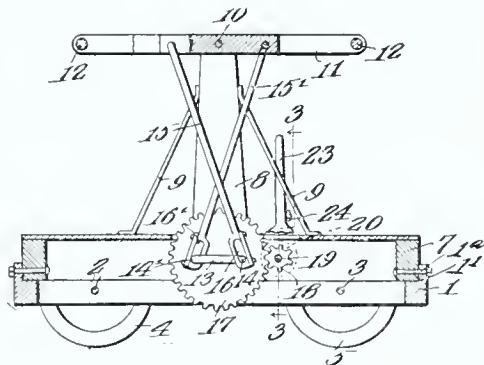


The stud 6 on the cap is fastened in a socket 23 in the supplemental cap 24, from which socketed arms and supports run to the circular hand rail 27. The whole may be covered by a canopy. The persons seated in the chairs grasp the handrail and by pulling thereon, cause the chairs to move around the standard, which will be easy on account of the anti-friction rollers on which the device is supported.

### Hand Car.

A method of operating hand cars with less effort than is generally necessary, and also for insuring smoother motion, has been patented by John A. Chambers, of Newburg, Mo. (assignor of one-half to Alexander B. Hale, of Rolla, Mo.) It consists essen-

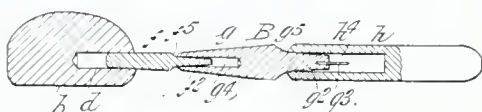
tially of a walking beam which operates the drive shaft, with the usual handle, a gear wheel keyed on the drive axle, a sub-platform which can be readily secured to the frame of any ordinary hand car now in use, and a crank shaft journaled on the frame 7 and having oppositely disposed cranks. In order to operably connect the walking beam to the crank shaft, the two rods 15-15' have their upper ends pivoted to the beam and the lower ends fitting on the crank 14-14'. Mounted on the crank shaft 13 is a gear wheel 17, meshing with the small pinion 18 keyed on the countershaft 19, the latter being parallel with the crank shaft. The sliding clutch 20 is



mounted on the shaft 19 and engages a rotatable member, the clutch being controlled by the fork of the operating lever 23, this being connected to a supporting bracket 24 on the frame 7. The rotating member carries a pinion which meshes with the gear wheel of the axle. A fly wheel on the shaft 19 provides momentum for the countershaft, and assists in operating the drive axle. It is evident that the walking beam may be operated by two persons standing on the platform 7, and that the reciprocating motion imparted thereto will rotate the crank shaft 13, and through the gears rotate the countershaft 19. By means of the clutch, the countershaft will transmit motion to the drive axle 3, and by reason of the fly wheel a smooth motion will be imparted to the same. When running down grade, the car may have its drive axle disconnected (through the clutch) from the countershaft, so that the walking beam 11 will not be affected and thus endanger the parties riding on the car. The countershaft may be rotated first to secure a certain momentum before the clutch is thrown in, thus assisting in starting the car from a standstill.

### Combination Darning Ball and Handy Implement.

A device available for several purposes—not only as a darning ball but as a last for mending the fingers of gloves, and also for the purpose of running rods through the hems of curtains, has been invented by Herbert C. Cook, of Springfield, Mass. As will be seen in the cut, the darning ball has



a flattened face on one side, and a rearwardly open socket. The handle has three sections, increasing in size toward the rear. The middle and front sections have their front ends round-

ed, and have attenuated axial stems at their rear ends. The stem  $g^2$  of the middle section has a pin projecting rearwardly, and this as well as the rear section have sockets in their forward ends in which the stems are detachably engaged; and the forward section  $f$  has a detachable crowding fit in the socket  $d$  in the ball. The stems of the front and middle sections taper, the angle at the forward portion being abrupt, and the sockets are adapted to bind these stems. This formation is of especial advantage, as the interengaged part will always derive a seating and detachable confinement regardless of swelling or shrinkage of the wood of which the device is made.

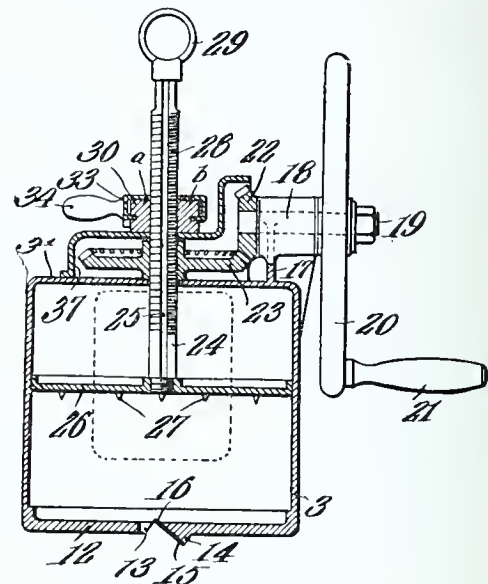
When it is wished to mend fabric, the rear handle section is removed, and the fabric is engaged with the pin  $g^3$  and drawn taut by the hand during the process. In mending gloves, the different ends of the sections of the handle are inserted in the fingers, according to the size thereof. To run rods through curtains, the hand sections are used, one end being inserted in the rod and the other in the hem, the choice being made according to the size of the rod.

### Feeding Mechanism for Ice Shaving Machines.

The widespread use of cracked ice for summer beverages and foods has led to the adoption of machinery for shaving away the ice in small slices. A device of this character, in which the block of ice is rotated while it is being shaved, and always held in a certain relation to the blade, has been patented by Harry Smith, of Norfolk, Va. As will be seen from the cut, the bottom of the ice receptacle has a slot which acts to discharge the shaved ice. The inclined rib 14 has removably attached thereto the shaving blade 15, whose edge projects into the receptacle, so that as the block is rotated, the blade will shave the same. An arm on the top of the ice receptacle carries the journal box which holds the operating shaft 18, carrying the balance wheel 20. On the inner end of the shaft 19 is keyed a pinion which

meshes with another, rotating on the main spindle 24, so that the rotation of the bevel pinion affects said spindle, and the circular disk 26 on the end of the spindle within the ice box, and having the ice engaging prongs on its surface, will impart to the block of ice a rotary action, causing the lower surface in engagement with the blade, to be shaved.

The spindle 24 has screw threads and a loop at its top end, by which the spindle and follower may be raised manually, instead of by reversing the rotation of the shaft 19. To cause the



spindle to move downward and carry the follower therewith to compensate for the shavings taken from the ice, and always hold the block close against the blade, a split interiorly threaded boss 30 is mounted above the bevel gear 23, and normally has its threads in mesh with the spindle, forcing the latter gradually down. The two sections of the boss have pins which pass through slots in the cap 33, whereby when the handle is manipulated the sections are moved from the spindle and the latter can be lifted to insert ice into the receptacle.

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## LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

### WINCHESTER REPEATING ARMS CO. v. BUENGAR et al.

(District Court, E. D. Wisconsin. Oct. 30, 1912. 199 F. R. p. 786.)

#### 1. PATENTS—INFRINGEMENT—RIGHT TO ATTACH CONDITIONS TO LICENSE—PRICE RESTRICTIONS.

The owner of a patent, who manufactures and sells the patented article, may reserve to himself, as an ungranted part of his monopoly, the right to fix and control the prices at which jobbers or dealers buying from him may sell to the public; and a dealer who, with knowledge of such reservation, violates the conditions of the contract under which he bought the article, is an infringer of the patent.

#### 2. PATENTS—SUIT FOR INFRINGEMENT—PRELIMINARY INJUNCTION.

In a case disclosing long acquiescence in a patent and clear infringement, a preliminary injunction may issue without prior adjudication, unless the validity of the patent is challenged in some affirmative or equally specific manner, raising a fair doubt.

#### 3. PATENTS—INFRINGEMENT—VIOLATION OF LICENSE AGREEMENT.

The fact that the owner of a patent, who makes and sells the patented article under a license system fixing prices at which it may be resold by jobbers and dealers, does not uniformly enforce the conditions so imposed, is not available as a defense to one who has violated them.

### ANDREWS WIRE & IRON WORKS v. WILSON MFG. CO.

(District Court, W. D. Pennsylvania. Sep. 25, 1912. 199 F. R. p. 798.)

#### 1. PATENTS—VALIDITY—KNOWLEDGE BY PATENTEE OF PRINCIPLE OF OPERATION.

A patentee should not be deprived of the benefit of his invention, if meritorious, because he may not understand the principle of its operation.

#### 2. PATENTS—VALIDITY AND INFRINGEMENT—TOASTER.

The Andrews patent, No. 897,513, for a toaster, was not anticipated, and discloses invention; also held infringed.

### WESTINGHOUSE MACHINE CO. et al. v. GENERAL ELECTRIC CO. et al.

(District Court, N. D. New York. Sept. 50, 1912. 199 F. R. p. 907.)

#### 1. PATENTS—PERSONS ENTITLED TO PATENT—PRIOR USE IN FOREIGN COUNTRY—"KNOWN."

Defendant, a citizen of the United States, conceived an invention, but did not reduce it to practice until some four or five years later, when he applied for and obtained a patent therefor. In the meantime complainant had made the same invention, and reduced it to actual practice and use in a foreign country, but did not patent it, nor was it described in any printed publication. He made a full disclosure of the invention orally to an American, who also saw the device in actual use, and on his return to this country described it, both orally and in writing, to others skilled in the art, who were capable of understanding it, but it was not put into actual use in this country. After defendant's patent had been granted, complainant filed an application for patent. Held, that the knowledge of the invention by persons in this country, obtained from complainant, in the absence of an actual reduction to practice here, did not make it "known," within the meaning of Rev. St. § 4886 (U. S. Comp. St. 1901, p. 3332), which authorizes the granting of a patent to an inventor for an invention "not known or used by others in this country before his invention or discovery thereof," and that, as between complainant and defendant, neither having reduced it to actual practice in this country, defendant, who was the first to conceive it and to constructively reduce it to practice by the filing of his application, under said section and section 4933 (U. S. Comp. St. 1901, p. 3396), took precedence as the original and first inventor, and was entitled to the patent.

#### 2. PATENTS—"INVENTION"—CONCEPTION.

A conception of the mind is not sufficient as an "invention," or a completed "invention," within section 4886, Rev. St. (U. S. Comp. St. 1901, p. 3382), requiring that, to be

entitled to a patent, the person must have "invented" or "discovered" some new, etc., thing.

### WOLLENSAK OPTICAL CO. v. ILEX OPTICAL CO.

(District Court, W. D. New York. Oct. 18, 1912. 199 F. R. p. 923.)

#### PATENTS—INFRINGEMENT—PHOTOGRAPHIC SHUTTERS.

The Wollensak patents, Nos. 679,134 and 700,878, each for improvements in photographic shutters, narrowly construed, and limited to the precise construction shown, as required by the prior art and the proceedings in the Patent Office, held not infringed.

### STANDARD CHOCOLATE CO. et al. v. ROBERT A. JOHNSTON CO.

(Circuit Court of Appeals, Sixth Circuit. Nov. 7, 1912. 200 F. R. p. 53.)

#### TRADE-MARKS AND TRADE-NAMES—UNFAIR COMPETITION—PRELIMINARY INJUNCTION.

Where complainant had for many years exclusively used the name "Johnston's Chocolates," until it had acquired a secondary meaning as a trade-name for complainant's product, the granting of a preliminary injunction restraining defendants, which were corporations, from using the name "Johnston's Chocolates" for their product, was with the discretion of the court.

COLMAN et al. v. BYRD MFG. CO. et al. (District Court, E. D. North Carolina. Oct. 1, 1912. 200 F. R. p. 59.)

#### 1. PATENTS—VALIDITY—PRESUMPTION.

The grant of a patent is prima facie evidence that the patentee is the first inventor of the device described therein and of its novelty.

#### 2. PATENTS—ANTICIPATION—COMBINATION.

A patent for a combination is not anticipated because all of the elements may have been in previous use, unless in substantially the same combination.

#### 3. PATENTS—VALIDITY AND INFRINGEMENT—KNOTTING MACHINE.

The Colman patents, No. 672,636 and No. 755,110, for a knotting machine designed for tying knots in thread as it is run off the bobbin onto the spool in cotton mills, were not anticipated, and disclose an invention of a primary character and great utility; also held infringed.

### DE LONG HOOK & EYE CO. v. AMERICAN PIN CO.

(District Court, S. D. New York. Oct. 17, 1912. 200 F. R. p. 66.)

#### 1. TRADE-MARKS AND TRADE-NAMES—NAMES OF PATENTED ARTICLES—EFFECT OF EXPIRATION OF PATENT.

Complainant and its predecessors in business made and sold hooks and eyes under the name "The De Long Hook and Eye"; the hook alone being covered by a patent granted to De Long, and the name as so used being applied to such hooks when sold in connection with eyes of various styles. Held, under the evidence, that the name had become known to the public as a generic name, descriptive of the patented article, and not as indicating the source of manufacture, and that, on the expiration of the patent, other manufacturers of such hooks were free to use the name "De Long Hook" as descriptive of their product.

#### 2. TRADE-MARKS AND TRADE-NAMES—UNFAIR COMPETITION.

Where the owner of a patent has made and sold the patented article during the term of the patent, under a descriptive name by which it has become known to the public, and continues after the expiration of the patent, another manufacturer, although having the right to use the name in connection with the same article made by him, in order to avoid the charge of unfair competition, must so differentiate his product in its markings or dress that purchasers using ordinary care will not mistake it for the product of the original maker.

PAGE MACH. CO. v. DOW, JONES & CO. (Circuit Court, S. D. New York. Feb. 1912. 200 F. R. p. 72.)

#### PATENTS—VALIDITY AND INFRINGEMENT—PRINTING TELEGRAPH RECEIVER—EFFECT OF DISCLAIMER.

The Joy patent, No. 750,664, for a printing telegraph receiver, claim 12, was not changed in character, nor invalidated by the disclaimer filed, which substituted the words "constantly rotating drive shaft" for the

words "constantly acting source of power," but limited merely, and, as so limited, it was not anticipated and discloses invention; also held infringed.

### PAGE MACH. CO. v. DOW, JONES & CO.

(District Court, S. D. New York. Nov. 2, 1912. 200 F. R. p. 74.)

#### PATENTS—INFRINGEMENT—PRINTING TELEGRAPH RECEIVER.

Infringement of the Joy patent, No. 750,664, for a printing telegraph receiver, claim 12, held not avoided by a modification of defendant's machine previously held to infringe.

### CONDIT ELECTRICAL MFG. CO. v. WESTINGHOUSE ELECTRIC & MFG. CO.

(Circuit Court of Appeals, First Circuit. Nov. 6, 1912. 200 F. R. p. 144.)

#### 1. PATENTS—INVENTION—CIRCUIT-INTERRUPTING DEVICE.

The Wurts patent, No. 570,416, for a circuit-interrupting device, claims 3, and 4, which cover a plurality of systems of electrical distribution, each having both an automatic and a hand-operated circuit-closer, in view of the action of the Patent Office, acquiesced in by the patentee, in rejecting a claim for the use of both such means in a single system, are void for lack of patentable invention, which cannot be predicated of the multiplication of devices, not patentable singly, nor coacting, which is merely an aggregation, and not a true combination.

#### 2. PATENTS—CONSTRUCTION—EFFECT OF ACTION OF PATENT OFFICE.

A patentee, who acquiesced in the rejection of a claim by the Patent Office, is estopped to claim the benefit of such claim, or such a construction of the claims allowed as would be equivalent thereto.

### BROWN & SHARPE MFG. CO. v. COATES CLIPPER MFG. CO.

(Circuit Court of Appeals, First Circuit. Nov. 13, 1912. 200 F. R. p. 149.)

#### PATENTS—INFRINGEMENT—HAIR CLIPPER.

The Carleton patent, No. 481,254, for a hair clipper having a push spiral spring in the frame to hold the two levers in closed position, in view of the prior art, must be reasonably limited to the mechanism described. As so limited, held not infringed by a device having different mechanism and on which a pull spiral spring is used.

### STAMFORD FOUNDRY CO. v. THATCHER FURNACE CO.

(District Court, S. D. New York. Oct. 24, 1912. 200 F. R. p. 324.)

#### TRADE-MARKS AND TRADE-NAMES—INFRINGEMENT—"SHIPMATE."

Complainant, having for many years manufactured a ship galley stove under the name "Shipmate," which had been sold through defendant, terminated defendant's agency, after which defendant manufactured a substantially similar stove sold for the same purpose, under the name "Messmate." Held, that the defendant's word constituted an infringement of complainant's trade-mark, against which complainant was entitled to an injunction pendente lite.

### MOTION PICTURE PATENTS CO. v. INDEPENDENT MOVING PICTURES CO. OF AMERICA.

(Circuit Court of Appeals, Second Circuit. Aug. 10, 1912. 200 F. R. p. 411.)

#### PATENTS—INFRINGEMENT—PROJECTING KINETOSCOPE.

The Latham patent, No. 707,934 for a projecting kinetoscope cannot be construed as to any of its claims as including a camera, but must be limited to a projecting apparatus, especially in view of the proceedings in the Patent Office preceding the introduction of such claims by way of amendment. As so construed, held not infringed.

### RUUD MFG. CO. v. PITTSBURG WATER HEATER CO.

(District Court, S. D. New York. Nov. 8, 1912. 200 F. R. p. 426.)

#### PATENTS—VALIDITY AND INFRINGEMENT—WATER HEATER.

The Ruud patent, No. 903,007, for a water heater, consisting of an automatic instantaneous heater, in which the water flows through thin copper coils over the burners, and the flow of gas to the burners is controlled and regulated both by the flow of

water through the water conduit and the temperature of the water flowing from the heater, acting through the medium of a thermostat, was not anticipated and discloses a patentable combination of utilities. Claims 1, 5, and 6 also held infringed, and claim 2 not infringed.

### A. R. MOSLER & CO. v. LURIE.

(District Court, S. D. New York. Oct. 28, 1912. 200 F. R. p. 433.)

#### 1. PATENTS—VALIDITY AND INFRINGEMENT—IGNITER FOR GAS, OIL, OR VAPOR ENGINES.

The Canfield patent, No. 612,701, for an igniter for gas, oil, or vapor engines, held valid, but limited to the particular forms illustrated therein, and, as so limited, not infringed.

#### 2. PATENTS—SUIT FOR INFRINGEMENT—LACHES.

An assignee of a patent is affected by the laches of former owners, and a delay of eleven years before the bringing of a suit for infringement, or making any use of the patent, during the greater part of which time numerous other manufacturers were in good faith expending money in producing the alleged infringing devices, and during part of which complainant (on its theory) was an infringer, constitutes such laches as will bar the right of the complainant to relief.

### WILLIAMS PATENT CRUSHER & PULVERIZER CO. v. KINSEY MFG. CO.

(District Court, W. D. New York. Nov. 15, 1912. 200 F. R. p. 441.)

#### PATENTS—INVENTION—PULVERIZER.

The Williams patent, No. 939,775, for an improvement in pulverizers, is not so clearly invalid on its face for lack of invention as to warrant its being so declared on demurrer.

### B. V. D. CO. v. KOMMEL et al.

(Circuit Court of Appeals, Second Circuit. Nov. 11, 1912. 200 F. R. p. 559.)

#### 1. TRADE-MARKS AND TRADE-NAMES—PROTECTION—STATUTES—CONSTRUCTION—"LABELS, MARKS, OR NAMES."

Penal Law N. Y. (Consol. Laws 1909, c. 40) § 2354, subd. 6, provides that a person who knowingly sells, offers, or exposes for sale any goods which are represented in any manner, by word or deed, to be the manufacture, packing, bottling, boxing, or product of any person, firm, or corporation other than himself, unless such goods are contained in the original package, box, or bottle and under the labels, marks, or names placed thereon by the manufacturer, is guilty of a misdemeanor. Held, that the words "labels, marks, or names," which the manufacturer is entitled to use on his packages, are trade-marks on which the manufacturer has a special right, or, if not technical trade-marks, those which are entitled to protection under similar principles, and do not include mere identifying numbers placed on the containers of the goods.

#### 2. TRADE-MARKS AND TRADE-NAMES—IDENTIFYING MARKS—OBLITERATION—INJUNCTION.

Complainant was not entitled to an injunction restraining defendants from selling complainant's manufactured goods, except in original packages from which identifying numbers had not been erased, where the only proof was that defendants sold a number of boxes of complainant's goods to an uncertain number of retailers, and that complainant's identifying marks had been obliterated, without anything to show that defendants erased the marks, or that they were erased while in defendants' possession, or to negative the fact that they were erased for a legitimate purpose, or that substantial injury was threatened.

### PNEUMATIC SCALE CORPORATION, Limited, v. AUTOMATIC WEIGHING MACH. CO.

(Circuit Court of Appeals, First Circuit. Nov. 22, 1912. 200 F. R. p. 573.)

#### PATENTS—INFRINGEMENT—AUTOMATIC WEIGHING MACHINE.

The Thomas patent, No. 766,004, for an automatic weighing machine, on which the approximate or preliminary load is obtained by a "time stream," the material being supplied to the receptacle for a predetermined interval of time, governed by the speed of revolution of a cam-shaft, which in each revolution, in conjunction with a spring, opens and closes a valve in the outlet of the hopper, is not infringed by the devices of the Pennock patent, No. 782,874, or the Doble patent, No. 720,008, both of which, instead of a time stream, employ the preliminary measuring devices of the prior art.



## MECHANICAL INVENTIONS

Patents for which have been procured through the Patent Soliciting Office of E. G. Siggers, Patent Lawyer, Washington, D. C.

Robert B. Gray, Port Carbon, Pa. Pneumatic Tire.—It is a well known fact that the majority of automobile accidents are caused by the puncturing and consequent deflation of a tire, the deflation causing the vehicle to skid and oftentimes to turn over. The primary object of the present invention is to provide a pneumatic tire so constructed that it will be impossible for the tire to become completely deflated. The tire consists of an outer tube, a series of open ended separate tubes of varying diameters within the same and removable collectively or individually therefrom, a normally closed air chamber arranged transversely within the outer tube and comprising an outer wall, an inner wall, and opposite side walls to which the ends of all of the tubes are fastened, the outer tube having an opening in the inner wall thereof and the inner end of the chamber projecting through and forming a closure for the same, a tube projecting from the inner wall, and a check valve for said tube.

Henry J. Lange, Lorain, Ohio. Heater for Hot Water System.—The object of the invention is to provide a heater adapted to use various kinds of fuel, and capable of being constructed almost wholly of cast iron and having joints between the sections arranged so as not to be exposed to the fire. It is also an object of the invention to provide a heater, equipped with a hollow grate, and in which water passes from the hollow grate to the manifold or distributing drum which circulates through both the water tubes and the water jacket, whereby two distinct circulatory systems are obtained. The heater includes a hollow grate section, hollow front and rear walls supported upon the grate section and communicating therewith at their lower ends, hollow side walls arranged and secured between the front and rear walls and forming a rectangular casing, said side walls being also supported upon the grate section and communicating therewith at their lower ends, and a hollow top or dome supported upon the side walls between the front and rear walls and communicating at the bottom with the side walls and at the top with the front and rear walls.

William H. Northall, Evansville, Ind., inventor; Frederick W. Goedeke, and Charles W. Halsey, same place, assignees. Three patents.—The object of the invention of the first patent is to provide a spring hinge designed for various uses in which the spring may be tightened or released by means of a simple wire nail or any convenient small rod, and which may be hung by persons having little skill in such matters. The spring hinge comprises two members, one housed in the other, a pivot pin traversing the members in axial relation thereto, a spring within the housed member, a ratchet engaging said spring and also lodged in the housing member, and a pawl for the ratchet of the housed member arranged in a position to be readily accessible for manipulation.

It is the aim of the invention of the second patent to provide a car seal, which will be impossible to pick or otherwise open without destroying it. Another object of the invention is to provide a car seal of this character adapted to be easily, quickly and properly applied to a car without re-

quiring the parts to be marked in order to correctly arrange the seal. The seal is composed of a casing comprising a plate having a longitudinal channel and provided at the outer end thereof with an inwardly extending resilient keeper, the inner end of the channel forming an entrance, a cap receiving and secured to the plate and fitting against the same at opposite sides of the channel, and a flexible metallic strip formed integral with one of the parts of the casing and provided at its free end with a catch for engaging the said keeper, and having a boss spaced from the catch and arranged to close the entrance to the channel when the free end of the metallic strip is inserted in the same.

The third patent covers a seal designed for use on box cars, beer boxes and various other receptacles, being equipped with a relatively narrow flexible strip or shackle, which will not require a large opening, so that the seal may be substituted for those having wire shackles. The seal comprises in its construction a casing, a locking plate mounted within the casing and provided with an opening and having a rear catch dividing the opening into two separate portions, said locking plate being also provided with a front catch located adjacent to one of the sides of the said opening and forming an entrance and interposed between the rear catch and the said entrance and forming a passage, which connects the two portions of the divided opening, and a flexible strip having a portion to engage with the front and rear catches of the locking plate and adapted to be guided successively into the two portions of the said opening.

Benjamin W. Pattinson, Manitou, Colo. Three patents.—The first patent relates to a commode chair designed for children and adapted to be compactly folded to enable it to be conveniently carried in a trunk or satchel. The foldable commode chair comprises a seat having front and rear sections hinged together and adapted to fold on each other, a lid also composed of front and rear sections being arranged to fold, a curved shield carried by the lower face of the seat and depending from one of the sections thereof, foldable legs supporting the seat, and a foldable back mounted on the rear section of the seat and foldable against the latter.

It is the object of the invention of the second patent to provide a folding cot and bath tub cabinet designed particularly for use on Pullman cars and other places where the space is limited, being arranged in the form of a wardrobe or other article of furniture so as to present an ornamental appearance and occupy but a small amount of space when the parts are folded and the tub closed. Another object of the invention is to construct the foldable bath tub so as to receive a mattress support to form a cot, and also provide means for permitting the tub to be used for vapor baths, and to afford, when folded, a compartment for holding various articles. The invention comprises a cabinet, a bath tub foldable within the same and projecting beyond the cabinet when in a horizontal position, a fabric canopy enclosing the projecting portion of the tub and provided with an extension arranged over a portion of the tub and a supporting frame connected with the canopy at the side edges of the top and detachably connected with the inner end of the cabinet. Means are also provided for automatically connecting the bath tub with a sewer or waste pipe when the bath tub is arranged for use, and for automatically disconnecting the bath tub from such waste pipe or sewer when the tub is folded within the cabinet.

The third patent covers a folding convertible chair designed for use in homes, hospitals, and elsewhere and adapted to be readily adjusted to

arrange it for an ordinary Morris chair, a rocking chair, invalid or doctor's chair, and capable also of being converted into a couch and of being compactly folded when not in use. The chair comprises a seat, front and rear legs pivotally connected with the seat, a hinged front section forming a leg rest and arranged to fold beneath the seat, supplemental legs pivotally connected to the outer portion of the front section, a back hinged to the seat and composed of side bars and longitudinal slats, means for connecting the upper portions of the slats with the side bars, and a cross bar connecting the lower portions of the slats and terminating short of the side bars, the lower ends of the slats being free and overlapping and resting upon the seat and supported by the latter when the back is swung downward to a horizontal position.

William F. Padden, Hankinson, N. D., inventor; A. R. Olson, assignee, Minneapolis, Minn. Clothes Draining Attachment for Washboards.—The object of this invention is to provide an attachment for wash boilers, designed for enabling the clothes, after the same are boiled, to be readily drained and conveniently transferred from the boiler to the tub or other receptacle containing the rinsing water. Another object of the invention is to provide a clothes draining attachment adapted to be compactly folded when not in use and capable of being extended both longitudinally and transversely to adapt it for use on boilers of different sizes. The clothes draining attachment comprises a frame composed of substantially U-shaped members, cross bars each secured to the inner ends of the sides of one of the said members and provided with guides receiving the sides of the other member, longitudinal bars secured at their outer ends to the said members and slidably connected at their inner portions, and resilient loops arranged in pairs at the end portions of the frame, each loop being connected at its inner end to the inner end of one of the sections of the frame at one side thereof and provided at the opposite side of the frame with an arm connected with the outer end of the other section of the frame, whereby the sliding of the sections of the frame on each other will distend and contract the loops.

Ulrich Sprinchorn, Jamestown, N. Y. Window Screen.—It is the aim of the present invention to provide a window screen adapted to be readily applied to either the upper or lower sash, and capable when the sash is closed of folding automatically in a compact condition at the top and bottom of the window frame or casing, whereby it will be out of the way and will also be protected from the wind and weather. The window screen includes a plurality of similarly shaped angle sections hinged together at their adjacent edges, said sections having angularly related sides or wings and being alternately reversely arranged to enable them to fold or nest compactly, means being provided to hinge the screen to the sash and the window frame.

Samuel W. Wilson, Atwater, Ohio. Safety Attachment for Pocket Books.—It is the aim of the present invention to enable a pocket book to be securely hooked or anchored within the pocket by a single prong, and to equip the safety device with a single operating member adapted to be readily manipulated to actuate the anchoring prong and capable of securely locking the prong in its engaging position and of effectually preventing any unauthorized withdrawal of the pocket book or accidental falling of the same from the

pocket. The safety attachment comprises a movable locking prong, a lever connected with the prong for actuating the same, an operating member slidably mounted on and carried by the lever and forming a handle for the same and having a groove or guideway, a fixed lug or projection arranged in the path of the operating lever and adapted to pass through the groove or guideway and capable of engaging the operating member, the latter being provided with notches to interlock with the lug and prevent the operating member from sliding on the lever.

Townsend W. Burt, Hempstead, N. Y. Three patents.—The first patent relates to a tire removing and applying tool. In removing the casing of a pneumatic tire in order to repair the air tube of the tire, it is the practice to insert a lever or narrow flat iron bar in the channel of the rim and engage the same under the edge of the casing, so that by swinging the iron around the edge of the rim as a fulcrum, the edge of the casing will be pried off over the edge of the rim and disengaged therefrom. It is necessary to repeat this operation around the entire rim, and it is also necessary to provide some means for holding the casing against reengagement with the channel of the rim under its own tension. Likewise when the casing is being applied to the rim, the tension or pull on one side of the casing tends to pull from the rim the small portion of the casing which has been engaged therewith, and it is necessary to provide some means of preventing such disengagement. The present invention provides a tool adapted to hold the tire in place while it is being fitted to the rim, and also to hold the portion disengaged from the rim while the casing is being removed. The tool comprises in its construction a straight shank having at one end a pivoted hook and provided at its opposite end with independent spoke-engaging means.

It is the aim of the invention of the second patent to provide a tire applying tool adapted to avoid the inconvenience heretofore experienced in mounting a pneumatic tire upon the wheel rim of a motor car or other vehicle, enabling such operation to be performed with much less effort and without damaging the beaded edge of the covering. The tool includes a body member adapted to span a wheel rim having a handle at one end and a rim engaging jaw at the other end constituting a fulcrum for the lever, and a lever pivotally connected to the body member in spaced relation with the jaw and having a short arm and a long arm arranged at an angle, the shorter arm being arranged in traversing relation to the body member and provided with a bill adapted to engage a tire on the side of the rim remote from that engaged by the jaw on the body member.

The object of the invention of the third patent is to provide a faucet designed for use in connection with the float valves of flush tanks and for various other purposes, and adapted to be readily taken apart to afford access to the valve and which will not grind the washer against the valve seat, whereby the durability of the washer is materially increased. The faucet comprises in its construction a body provided with an interior valve seat and having exterior screw threads, a slidable plunger adapted to support a washer in position to coact with the valve seat, and a nut engaging the exterior threads of the body and rotatable around the plunger and having means for engaging the same to slide the plunger inwardly in the direction of the valve seat, without however rotating the plunger.



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## AN ERROR OF JUDGMENT.

One of the first acts of Secretary of the Interior Lane, the Cabinet officer under the new Administration who has control of the Patent Office, was to reinstate the disbarred patent attorney, John Wedderburn. It will be remembered that this man was disbarred from practice about sixteen years ago by the Secretary of the Interior, and his name was placed on the fraudulent list by the Postmaster General of the United States. This last disability prevented his receiving any letters through the United States mail. All letters addressed to him at the Washington address were stamped "fraudulent" and returned to the sender.

Mr. Wedderburn was probably the most brilliant and successful promoter of a fraudulent patent soliciting business that ever appeared in Washington, and that is saying a great deal, for many have followed his scintillant example, but lacking his boldness have shrewdly escaped his fate. Hundreds of would-be inventors, farmers, mechanics, sewing girls, and chambermaids, were induced to send him money on the report by him that their utterly old and useless devices were patentable. This report was fortified by a silver medal (worth from 15 to 20 cents) which Mr. Wedderburn claimed had been awarded them as a prize by a board of scientists and expert examiners. The medal was advertised to be bestowed upon meritorious inventions. It was sent broadcast to all of Wedderburn's clients, regardless of the nature of the devices they had invented. The board of examiners in this case consisted of the girl he employed to direct letters.

The following extracts from the decision of Mr. Butterworth, Commissioner of Patents at the time of Wedderburn's disbarment, are of timely interest. Mr. Wedderburn throughout is referred to as "the respondent."

"The charges are that the respondents, as solicitors practicing before the Office, concocted a scheme and plans to impose on, deceive and defraud unsuspecting and unwary persons throughout the country by a system of advertising and correspondence which was false in suggestion, misleading in fact and fraudulent in tendency and purpose: that the effect of their scheme...was to induce...tens of thousands of persons to believe that the Government of the United States would readily grant a patent on any improvement on articles or utensils in common use: that there was...an active demand among...manufacturers for such inventions, and that they stood ready to purchase any one of a thousand of such inventions: the suggestion being that John Wedderburn & Co. had knowledge of this great demand and could successfully avail themselves of it to sell the patents of their clients, and that a fortune may be made of some simple little thing: that the respondents, while calling attention to these alleged rare opportunities, felt anxious lest inventors...may fall into the hands of unscrupulous patent sharks...and while evincing in their publications tearful solicitude for the honest, well-meaning and wholly unsuspecting person who is so liable to be wronged by sharpers, the respondents themselves were in fact doing the very thing they so feelingly deprecate and condemn...and have so successfully employed these means and agencies that more than 33,000 persons have been induced to establish the relation of clients...and that of the 33,000 clients less than 1600 applications have been allowed...."

It is one of the worst features of the methods and practices of Wedderburn & Co. that young men anxious for employment are employed and utilized by respondents to write in praise of, and assist in promoting business schemes and enterprises which are reprehensible in method and influence, if, in fact, they escape being criminal. The tendency being to proclaim to the community...that neither strict integrity, candor, nor the observance of the recognized canons of common honesty are necessary, or in fact desirable, in money getting...It is not complimentary to some of these young men that they were identified with an enterprise which employed methods...calculated to compromise and injuriously affect not only the Patent Office...but to create the impression that the profession of the law was made up of unscrupulous sharpers....

The worst, most deceptive and dangerous character of lying is that

which finds expression in the suppression, perversion or distortion of the truth; and it occurs that a large part of the correspondence and literature offered in evidence, and which was sent through the United States mail from the office of the respondents, was intended to mislead or deceive....

The respondents seem not to have taken a single step without having carefully considered every question of legal liability, civil and criminal, that might attach to their acts, and to have hugged the line closely at every point, seeking, however, to avoid liability... The Postoffice Department of the United States and the Patent Office were for nearly two years the agents and instrumentalities used for carrying on these schemes, to the disgrace of the Government...By judicious advertising and making certain newspaper proprietors...stockholders of his "joint stock company," Wedderburn & Co. are enabled to reach every neighborhood in the country, and poor inventors...are plucked by schemes supposed not only to be within the protection of the law, but to be sanctioned and aided by some of the Government agencies. The victims are of course helpless, while the respondents...utilize the two great Departments of the Government to reach these victims of their rapacity and induce them to part with their money... And the brilliancy and pecuniary profit of the achievement have hitherto purchased absolute immunity and even favor....

It will be observed that they have made 33,000 searches during the brief time they have been in business, and have filed less than 4,000 applications. Of these applications, about 50 per cent have been rejected by the Office as containing nothing patentable, and yet, notwithstanding all this, Wedderburn & Co. have sent out over eleven thousand... "sterling silver medals" as a "reward of genius" to the inventor, and as evidence of the superior merit of his invention, which he was assured was of value....

My conclusion is...that John Wedderburn & Co. have, as solicitors before this Office, been guilty of gross misconduct, and that they should be disbarred from practicing before the Department of the Interior."

If obvious injustice had been done in this case: if Mr. Wedderburn's ability as a patent attorney had been so marked that his disbarment caused loss to the profession and worked injury to the inventors of the country, there could be no objection to his reinstatement. But there has been no insistent demand on the part of the public for this action, and there is nothing in his record to lead us to

believe that the official sanction of his admission to again practice before the Patent Office will raise the standard of the patent bar. Since his disbarment, Mr. Wedderburn has been in the wholesale liquor business, and has advertised extensively in the local papers. There seems to be no protest from this source against his reinstatement. Secretary Lane appears to have erred in this recent action, and we believe he will see this more clearly in the future.

## THE PANAMA-PACIFIC EXPOSITION.

The Panama-Pacific International Exposition which is to be held at San Francisco in celebration of the completion of the Panama Canal will open its doors to the public on Saturday, February 20, 1915.

Although two years in advance of the opening date, progress upon the Exposition has reached a stage of accomplishment in all its departments which, in the opinion of expert observers, has not been exceeded by either of the last two great expositions a year before their opening. The exposition grounds, which cover an area of 625 acres, have been prepared. First work has started and the exposition headquarters building has been completed.

Contracts for the main exhibit palaces, of which there will be fourteen, will be let at the rate of two each month, and all the buildings will be completed under contract by June 25, 1914.

Twenty-six American Commonwealths have selected sites for their State buildings. The following foreign Governments have thus early accepted the invitation of the President to take part in the Panama-Pacific Exposition: Guatemala, Haiti, Salvador, Dominican Republic, Honduras, Panama, Mexico, Peru, Costa Rica, Bolivia, Japan, Ecuador, Uruguay, Canada, Liberia, France, Nicaragua, Cuba, Great Britain, China, Portugal, Sweden, Holland, Spain, Denmark, Argentine Republic.

More than two thousand applications for concessions have been received by the Panama-Pacific Exposition in San Francisco. Fourteen of the accepted concessions will involve an expenditure of more than two million dollars. Among the concessions will be a reproduction of the Grand Canyon by the Santa Fe Railway; a working model of the Panama Canal with a capacity to accommodate two thousand people every twenty minutes; a panoramic spectacle of the evolution of the American Navy: a reproduction of the Grand Trianon at Versailles, reproducing the historic battles of Napoleon, and the Creation, based on the first chapter of Genesis. All the concessions will be educative.

Applications for exhibit space at the Panama-Pacific Exposition in San Francisco have exceeded the amount of available space. Many of the exhibits will range in value from \$250,000 to \$300,000.



**Auto Gloves Heated by Electricity.**

The drivers of automobiles suffer very much, in cold weather, from the fact that their hands cannot be properly protected. A new idea is to heat these gloves by electricity. The heating units consist of insulated wire woven into the inner body of each glove, and on the inside of the thumb and one finger are contact points which, when closed over contact plates on the steering wheel, serve to make a connection so that the current, flowing through an electric cord attached to the batteries, passes into the gloves and heats them.

**Candied Wood.**

The latest method of preserving wood is to candy it in sugar, as is done with fruit and flowers. Woods of various kinds have been tested in this way, and the sugar process has been found not only effective, but less costly than many other preservatives. The wood, just after it has been cut, is placed in tanks filled with a solution of sugar, the character of the solution varying according to the kind of wood that is being treated. The tanks are heated and the wood is allowed to remain for the length of time desired. It is said that the whole process, including the drying, takes but a few days, and wood conserved in this way is not subject to dry rot.

**An Aero-cycle.**

Flying has become so much of a regular business that a device for rescuing stranded aeroplanes has been invented by an engineer of the French army. The French have for some time been experimenting with the plan of traversing the Sahara desert in flying machines, and several of the experts have penetrated for certain distances. One of the problems of desert flying is the provision of some means whereby aid can be carried swiftly to a stranded airman, and for this purpose a curious vehicle, driven by an aerial propeller, has been invented. The frame is triangular, and is supported at each corner by a two-wheeled truck. Each wheel is arranged so that it can displace itself along an axis perpendicular to the line of running, so that the total weight of the machine, which is not more than 700 lbs., is equally distributed on all six wheels. It is designed to run on the sand, but when it comes to bad places, to pass over them easily—hop over them as it were—without injuring the machine.

**Submarine Light.**

An eye that can pierce the dark depths of water will be employed by the Chicago police in their struggle against crime. The Chicago river is very dirty, and many accidents occur at that place. To recover the bodies of drowned persons, it has been necessary for the police to run back and forth over the bottom of the stream with grappling hooks, which are cumbersome and often inefficient. The new submarine light is expected to greatly facilitate this work. It consists of a cylindrical tungsten bulb whose rays are refracted through a heavy triangular prism of glass so as to light a large area on the bottom of

the river. It is said that the bottom is plainly visible to depths of 18 to 20 feet, and partially illuminated for ten feet more.

The light is mounted in a motor boat which moves at 15 miles an hour. Two police crews will man it, and day and night they will patrol 47 miles of river and 27 miles of lake frontage. The boat is equipped for the resuscitation of the bodies recovered. A folding cot is provided, and a first aid set.

**Life Rafts From Seats.**

Among the other devices to facilitate means of escape in times of ship wreck, which have resulted from the loss of the Titanic, is a kind of seat to be used on the deck of a steamer, that can be easily transformed into a life raft. The person sitting on the seat has only to raise the front portion until it is level with the bottom of the seat. At this point it automatically locks itself and is ready to be floated, either side up. Each seat is fastened to the deck by hooks and light lashings. The hooks are loosened and the lashings undone by the raising of the front of the seat. Each of the benches is nine feet long, and is supported on four metal air tanks. When converted into a raft it can carry six people. If no one happens to be using the seat when the boat sinks, the rising of the water over the deck will lift the front, unfasten the hooks and lashings, and let the seat float off free, so that any swimmer can make use of it. These raft-seats are being installed on its boats by a trans-atlantic line of steamers.

**Hunting for Gold with Wireless.**

Wireless telegraphy for locating precious ores in the depths of the earth is being experimented with, with results that give hope of success. The earth does not permit the passage of electricity into its interior, but Hertzian waves readily penetrate the ground until checked by metals, water or similar materials. As is well known, the wireless waves are not electric, but a form of oscillation caused in the ether by the discharge of electric sparks. These oscillations readily penetrate paper, porcelain, sands and clays. But should a metal plate be encountered, they are reflected. It is on these well demonstrated principles that the use of wireless for exploring the earth's interior is based.

The method is described in *Popular Mechanics*. Two instruments are employed, the oscillator or sender, and the coherer or receiver, substantially of the same nature as those used in wireless telegraphy. Each of these instruments is placed at the focal point of a parabolic metal reflector. In exploring the earth, the oscillator and coherer are so adjusted that the waves emanating from the former are reflected so that, if no obstacle were interposed, they would strike the mirror of the latter in parallel lines and therefore converge on the coherer at its focus. But in the path of the waves from the transmitter to the receiver is placed a metal plate which prevents the passage of waves to the receiver and reflects them obliquely into the earth. The waves pass readily through comparatively dry strata of sand and

clays, much as light penetrates glass: but when an ore body or water course is encountered, the rays are deflected upward through the earth as a mirror casts back sunlight.

The waves in their upward flight are arrested by the reflector of the receiver: and the angle to which the receiver's reflector must be turned in order to catch and focus them on the coherer, and the distance between the center of the interposed reflector plate and the focal point of the receiver's reflector, furnish means to calculate the depth and position of the ore body or water course. An electric gong inserted in the power circuit of the receiver gives the alarm when rays pass from the oscillator to the coherer. It is apparent that the greatest obstacle to be conquered is the penetration of damp surface strata, but by using powerful transmitters it is believed this difficulty may be overcome.

With an ore body located, its area may be approximately determined by taking several observations, with the transmitter and receiver placed at various points. The character of the body must, of course, be determined by drilling.

This use of wireless for detection of valuable metal deposits is naturally only in an experimental stage, and many obstacles remain to be overcome: but the future is freighted with interesting possibilities. If the method succeeds, it may revolutionize the mineralogical world and open treasuries of wealth dwarfing all hitherto found.

**Seventy Miles of Wire to a Pound.**

Since the days of Arachne, the most marvelous spinning is that of the machines that produce fine wire. We are accustomed to the apparatus which draws out thousands of miles of fine thread of cotton or silk: but the spinning of metal threads so delicate that they rival the product of the spider, is an achievement in the science of manufacturing.

In fine mechanism, copper, platinum, gold and steel wires are of special value, and these must be drawn cold in order to retain their tensile strength. For a great many years steel dies were employed for drawing these wires, but the need of obtaining even finer ones induced experimenters to try precious stones as dies. Even the hardest steel dies, when employed for drawing copper, silver, platinum or steel wire, cannot long stand the friction. The diameter of the dies becomes enlarged, so that the perfectly uniform wires cannot be drawn for any great length of time. In delicate work the variation of the thousandth part of an inch in the diameter of the wires would make them worthless. Wires less than one-hundredth of an inch in diameter must have sapphire or diamond dies. With diamond dies it is possible to draw copper wire to three one-thousandths of an inch in diameter, and in one pound of metal there are over six miles of such wire. Platinum wire can be drawn to a diameter of five ten-thousandths of an inch.

Several thousand dollars' worth of

diamonds are used annually as dies in the different wire factories of the country. These diamonds weigh from four to five carats, and are worth from \$15 to \$20 a carat. They are rough diamonds, and are neither cut nor polished. They need not be particularly good diamonds, and often stones which are hardly fit for the jewelry trade can be utilized for this purpose. The chief quality essential to their usefulness is hardness, and all diamonds possess this virtue to an extraordinary degree.

The diamonds are cut only for the die, and this delicate operation is performed by experts, who work with the aid of powerful microscopes adjusted to their eyes. The dies are so small that to the naked eye the diameter of the cut is scarcely visible. Such diamond dies can be used for drawing many hundreds of miles of wire before the friction enlarges the diameter so as to make it necessary to recut.

The necessity of drawing steel wire to extremely fine diameters has in recent years led to remarkable results. Specially made steel has been drawn to a diameter of one-thousandth of an inch. At one factory where quantities of wire are drawn for the different industries, one pound of steel has been converted into nearly 70 miles of wire. The expense of drawing such fine wire is so great that a ton of steel worth in the billet form about fifty dollars, increases in value so that the finished wire is worth about eighty thousand dollars a ton. This makes the finest steel wire about forty dollars a pound, or two dollars and fifty cents an ounce.

From one ton of steel, wire is thus drawn which will reach around the globe nearly six times. Its total length of about 140,000 miles represents the finest spinning of the modern metal workers in the steel industry. The wire is so fine that a strand of it placed on the hand seems almost like a ray of sunlight instead of a strong, flexible, enduring piece of steel. In the manufacture of such a quantity of fine steel wire, a number of diamond dies are used up, in spite of the extreme hardness of the stone.

Fine copper wire is extensively used today in the electrical industry, and new inventions in this line require the drawing of finer and stronger wires nearly every year. Steel dies for drawing aluminum wires have been made so exact that those with a diameter of 25 one-thousandths of an inch can be used for turning out hundreds of miles of the wire without showing a fraction of variation throughout the whole length. The softer the metal, the less destructive to the dies is the drawing of the wires, and diamonds are therefore of the greatest value in making fine steel wires of great tensile strength and hardness.

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Trousers support.....G. D. Jones  
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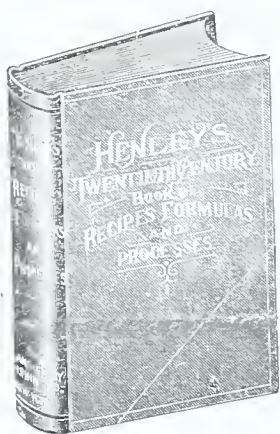


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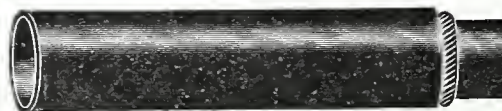
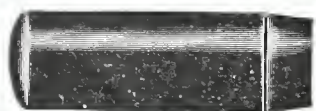
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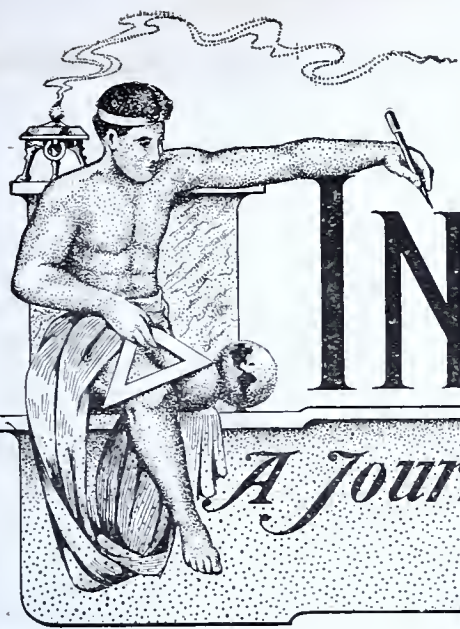
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## ELECTRIC FILTER PRESS FOR COLLECTING PRECIPITATES.

By FRANK C. PERKINS.

THE accompanying illustrations show the design and method of operation of a novel continuous bucket-chain filter press for collecting gold and silver precipitates in cyanide and chlorination plants. This press has recently been built at Orange, N. J. and requires only about 1-horsepower to drive it. It can handle material continuously at the rate of 360 bushels per hour, and the material is all pressed twice between cloths, the cake being turned automatically between the two pressings.

This press was invented by John J. Beirigan, who has devised two forms of filter presses, one affording a continuous process, discharging the pressed cake automatically, the other practically continuous for moderate quantities, but requiring hand removal of the cake from the filter bags when their capacity has been reached. It may be stated that the latter machine is most applicable to the treatment of different forms of milk and is adapted to various uses in dairies, such as the filtration of curd from buttermilk or soured milk and the cleansing of milk.

It has some remarkable features in providing the simplest means of variation in the amount of pressure applied and in the time of applying the pressure. The method of operation is ingenious and unique. In principle, the pressure upon the filter bags is ap-

plied by the weight of the apparatus itself, unless very high degree of pressure is required, in which case it may be increased to almost any degree by a reversal of the hydraulic power used to raise the apparatus to its primary position.

It will be noted that the machine consists of a heavy upright frame in which the motive parts are suspended; these consists of two four sided toggle-jointed frames, one at each end, sus-

hydraulic cylinders, placed at each end of the apparatus, in which the water, under any available pressure, may be admitted either above or below the piston. It will be seen that when the water is admitted below, the toggle-jointed frame is raised, thus lifting and separating the heavy pressure plates, and when in that position the filter bag suspended between them may be filled. The plates are copper-faced and a copper tray be-

letting down the whole suspended apparatus and forcing the plates together. The pressure thus obtained from gravity alone is sufficient in many cases to give as complete expulsion of moisture as necessary. If more is needed, as soon as the apparatus has fallen to its lowest point any desired degree of pressure may be applied by admitting the water under pressure above the hydraulic pistons.

It is held that this machine may be fed from a tank, and the alternate rise and fall of the press may be automatically arranged for a mechanical operation of the water valve and pump. Or, for operations of moderate extent, a simple hand pump may be used, a few strokes of which are sufficient to raise the apparatus to its primary position.

It is of interest to note that the other form of press consists in the single unit (capable of indefinite extension) of an endless chain of half-cylindrical metal troughs, perforated and fastened together by rods passing through the flanges at the ends of each, between

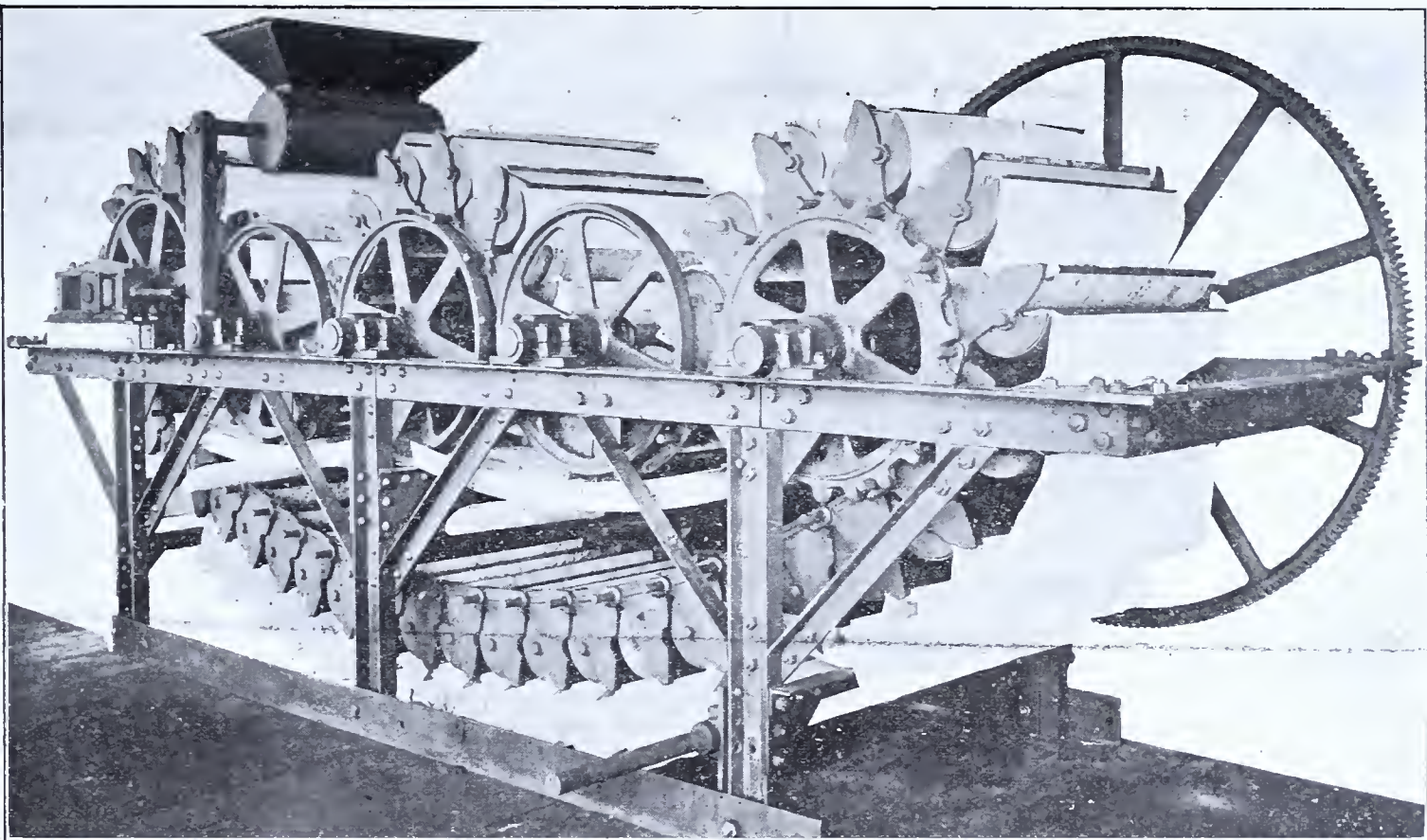


FIG. 1.—FILTER PRESS MACHINE.

pendent at the apex. Between these and suspended by single pinions at each end, are two heavy iron plates whose weight forces down the four sided toggle-jointed suspension frames until the two heavy plates press themselves together by their own weight. The bottom joints of the suspension frames are supported by the piston rods of

neath carries off the filtered liquid. When it is desired to apply the pressure the top edge of the suspended plates are drawn together and clamped, and the water is allowed to escape from the supporting hydraulic cylinders through a valve as fast or as slowly as desired.

The piston falls as the water escapes,

the troughs and half-cylindrical cores, arranged so as to fit snugly into the filtering troughs when the chain of troughs is curved upward. Between each trough and its core is a filter cloth. The chain of troughs is carried over sprocket wheels borne at each end of the shaft, supported on a rectangular iron frame. The sprockets



work on the projecting ends of the steel bars by which the troughs are held together, and between the sprocket wheels are idlers. The chain of troughs passes under the machine from end to end, hanging free: it passes up over the first sprocket wheel, then down under the idler wheel, and up over the end sprocket. As the chain of troughs, with the filter cloths attached to each core and its receiving perforating trough, passes over the first sprocket, the cores are thrown apart from the troughs and these are filled (the cloth intervening) from a hopper, with the material to be filtered; then as the chain of troughs and cores passes under the idler wheels the cores are forced into their respective troughs, putting upon the material in the troughs the full pressure derived from the weight of the endless chain and squeezing out the moisture, which falls to a pan below.

Finally as the troughs rise over the last sprocket they begin to separate from their cores, and as they pass down under the machine they become so far inverted and separated that the filter cloths fall inside out, automatically discharging the cake. The machine is capable of giving enormous pressure and its capacity is very great.

touch the wheels, the bearings being on the projecting ends of the steel rods, which serve as pins in the links of the bucket chain. While passing over the top of a wheel the buckets are further apart one from another than they would be if the chain were traveling in a straight line, for the reason that they arrange themselves radially on the wheel, and thus spread apart at their outer edges. Conversely when passing under a wheel the buckets are brought closer together.

With the construction shown, the buckets are arranged in a semi-circle of much smaller diameter when passing under a wheel than when passing over. Each link of the bucket chain carries both a bucket and a pressing block. The pressing block, or die, fits into the adjacent bucket when passing under a wheel and presses upon the material contained in that bucket. The drawing, Fig. 2, shows this section clearly, the material to be pressed being poured into the buckets when they are at the top of the first wheel. The pressing blocks are then far enough removed to give free access to the buckets. The material is held in the filter cloth linings of the buckets, which form themselves into long narrow bags as indicated by dotted

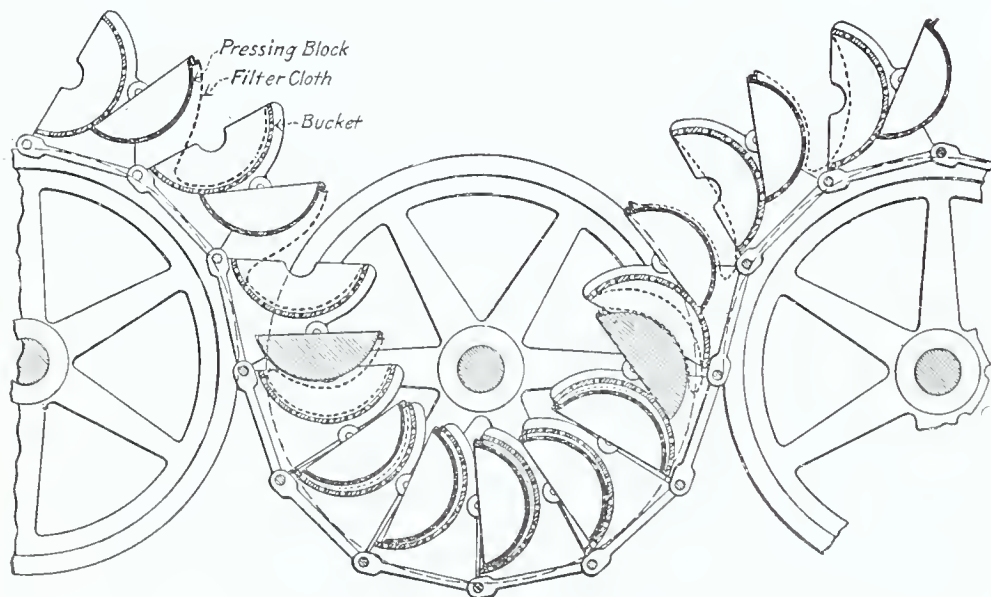


FIG. 2.—DETAIL OF OPERATION.

It may be stated that in the common method of filter-pressing a number of layers of material are built up, each layer being enclosed in filter cloth, and the whole mass is then subjected to pressure by means of screws or a hydraulic ram. The liquid squeezed out must travel to the edges of the layers in order to escape. In the continuous press to be described, thin layers of material are pressed separately. This method has the double advantage of requiring less pressure, (and therefore less power to remove the same amount of liquid) and of permitting the use of a lighter weight of filter cloth, since the cloth is supported at all points by perforated metal plates.

The photograph, Fig. 2, shows the general appearance of the Berrigan filter and also gives an idea of the principle on which it works, the pressing being done in buckets of semi-circular section connected in an endless chain. The bucket chain is threaded over and under a series of five pairs of wheels mounted in a horizontal frame. The buckets themselves do not

lines in Fig. 2. The buckets are formed of perforated steel plates so that the liquid pressed out through the cloth when the bucket passes under the wheel can escape through the perforations into the galvanized iron pans below. These pans have spouts through which the liquor is drawn off from them.

As seen in Fig. 1, the wheel at the right-hand end of the machine is the driving wheel, and is armed with sprocket teeth which engage the projecting ends of the link pins. The other four wheels are simply idlers, whose purpose is to change the direction of the bucket chain. The buckets are filled as they pass over the first wheel at the left hand end of the machine by means of a hopper and drum shown at the left. The drum has a longitudinal slit at the bottom through which the material is delivered. Charges of proper size are measured out by means of revolving longitudinal blades inside the drum. The buckets then pass down under the second wheel and the material is compressed, after which they rise upon the third wheel.

As the buckets pass over this wheel their movement relative to each other causes a shifting motion of the filter cloth, which either turns over or crumbles the cakes or nearly dry material left in the bags. As they pass down under the fourth wheel the cakes are squeezed again, and finally they are dumped when the bags turn inside out after passing over the driving wheel.

Every sixth pressing block is shown solid in Fig. 2, while the others are in the form of semi-cylindrical shells. The solid blocks are introduced to increase the weight of the bucket chain. The return portion of the chain hanging beneath the wheels includes 30 buckets and has a weight of about three tons, which is utilized to give the requisite tension in the chain. The sag of the return side of the chain is of value in providing against injury to the machine due to the accidental presence of any object, such as a bolt or wrench, in one of the buckets. In such a case the bucket chain cannot be bent, at the point where the obstruction is, in a sufficiently small radius to conform to the rim of the wheel when passing under it. It therefore stands out from the wheel, touching it only at the lowest point in the extreme case. The only result is to take up some of the sag in the return side of the chain, whereas if too little sag were allowed, something would have to give way and the machine might be damaged.

It is held that the capacity of the machine is limited only by the speed at which it can be safely and effectively operated. This machine is run at a speed which gives one complete passage of the chain in  $4\frac{1}{2}$  minutes. As there are 54 buckets in the chain, this gives 12 buckets per minute. Each bucket on the machine is three feet long and holds a half bushel of material, so that the machine runs at a capacity of some six bushels per minute or over 100 barrels per hour. This is many times the capacity of a screw or hydraulic press requiring the same amount of space and horsepower.

#### Meerschaum.

The utilization, in a commercial way, of the curious light substance which has been given the picturesque name of "sea foam", came about, as so many industries have arisen, by accident. An Austrian nobleman in his travels collected a number of curios, and among them a nodular mass of white stuff that came from Asia Minor. It occurred to him that it might be used for a pipe, and he turned it over to his cobbler, who made two out of it, one for his employer and one for himself. For some weeks the cobbler smoked his own, and then he discovered two shiny brown spots on the bowl. He was much puzzled by their appearance, but finally perceived that they came where his thumb and finger touched the pipe. That thumb and finger were in the habit of handling the beeswax used in strengthening the thread with which he sewed shoes. He rubbed the wax all over the pipe, and saw it gradually assume a glossy color. That was the beginning of the meerschaum pipe industry. Today every pipe of this material is dipped into heated beeswax before it leaves the factory. A

pipe not so dipped will color, but it will have no gloss. The polish is produced by the nicotine working on the meerschaum.

The masses of raw meerschaum resemble large Irish potatoes, and are dug out of the soil. Each block is sawed into as many pieces as it is desired to transform into pipes. These pieces are then soaked in a tub of water until they are brought to the consistency of cheese. While still wet, they are roughly shaped with a sharp knife into various styles of pipes, and holes are bored into them with a foot lathe. They are placed in a hot oven for six hours, the amber bits fitted in, and the pipe is ready for what is known as finishing. The meerschaum is polished with sandpaper, but as this leaves scratches, it is again rubbed with ordinary bulrushes. It is now dipped in wax. All this must be done by hand. Meerschaum is so peculiar that it cannot be worked with machinery, so this is one of the few industries that is dependent on hand labor. In making a standard pipe, a portion of the day's work of about ten persons is required. If it is ornamented, ten persons more have to be included. A good carver can turn out four or five elaborate bowls in the course of a working day. A pipe is carved twice. After the first shaping, while the stuff is yet wet, it is baked, finished and boiled in sperm. This process hardens the material so that in the second carving the desired sharpness can be given the design. In carving, only cutting is done; there must be no scraping. When meerschaum is scraped it becomes spotted, and no amount of work can eradicate the spots.

Another peculiar characteristic of this curious substance is that a block of it in the raw state cannot be broken by a blow from a sledge hammer, though every blow will dent it. Yet after it has been cut for pipes, soaked and baked, it can be easily broken. The only time that meerschaum, after it has been made up into a pipe, regains anything like its original cohesive property, is after it has been boiled in oil to set its color. This boiling makes it hard and tough.

In view of the care and effort involved in the above described process, meerschaum pipes are necessarily expensive. A genuine article can be bought for as low as \$5, but the prices for the elaborately carved pipes range in the hundreds of dollars.

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## TESTING GUNS FOR UNCLE SAM.

We hear a great deal about the man behind the gun, and about the guns themselves. Statements issued by the Bureau of Navigation of the Navy Department show the excellent records made by the marksmen on the warships of the United States in annual target practice competition. Stress is laid on the skill of the gunners; but we seldom hear of the methods by which this skill is won—of the period of probation through which all the arms and ammunition of the navy passes before it is pronounced fit for use.

Down the Potomac River, about 28 nautical miles from Washington, and out of earshot and gun range of Washington, located the headquarters and scene of action of one of the most destructive forces on earth. This is Indian Head, the proving grounds of the navy, and here the product of years of ingenuity, and devices that cost fortunes in material and workmanship, are ground into fragments in the twinkling of an eye. The surrounding hills are torn and lacerated, and gaping holes have been pounded into the cliffs.

The tests conducted here cover every character of arms and every species of ammunition used in the navy and many that are not used, for those that do not measure up to the requirements of the service and to the standard of excellence that must be maintained to insure an untarnished efficiency are promptly discarded and blacklisted or returned to the sources from which they come, with recommendation for improvement.

Big and little guns, rapid-fire machines, shells that stand the height of a man's head, projectiles that weigh half a ton, long bands and magazines of small cartridges that are discharged in "bunches," powder, of almost every imaginable size and shape; explosives of peculiar names and dangerous characteristics, armor plate as thick as the wall of an office building and a few score warlike contrivances are included in the category of things testable and tested at Indian Head.

Each and every test is conducted with the utmost regard for detail. Each particular is looked after with exactitude and precision. A record is made and preserved of the minutest feature of each step toward the accomplishment of the test.

Let it be a giant 13-inch gun which is to be mounted in the turret of a battleship. A thorough study is made of the composition of the metals of which it is constructed, of the manner in which its several bands are united, of its rifling, of the mechanism of its breech, of its mount, of its firing apparatus, to say nothing of careful notations of its various dimensions, the bore being sufficiently large to permit a man to crawl through it. This gun is tested for its throwing power, the accuracy of its bore and for its ability to withstand the tremendous pressure that is exerted on it whenever it is placed in action.

It will be found that this gun, or

breech-loading rifle, as everybody in the navy from the freshest midshipman at Annapolis to the highest admiral calls it, will withstand a pressure during firing of 15 tons to the square inch, under a load of 575 pounds of powder and throwing a projectile weighing 1,200 pounds. As the projectile speeds from the muzzle of the rifle it will be traveling at the rate of 2,400 feet a second. When, after traversing some seven or eight miles, its velocity has been reduced to about 1,800 feet a second, it will penetrate a hardened-face steel plate 17½ inches thick. In securing these data with the necessary precision pains are taken to measure and weigh powder and projectile to the veriest fraction and the most delicate mechanisms are employed to ascertain the results. The interior pressure is determined by an arrangement which is the product of the most advanced mathematical and mechanical endeavors. The speed of the projectile is discovered through a system of delicate electrically wired screens placed at carefully selected distances in the progress of the missile.

A test may also be made to determine the rapidity with which the gun can be fired, with some allowance to permit the big death dealing machine to be cooled between each round.

Guns of smaller caliber are put through the same general processes and some interesting statistics are furnished by recent experiments at the proving grounds.

A 12-inch gun, for instance, weighing 52 tons and being 50 feet long, hurls an 85-pound projectile from its muzzle at a speed of 2,800 feet in a second of time. The energy behind this big shot is scientifically figured out as 58,221 tons, which would send the projectile clear through 24 inches of the hardest steel placed near the gun's muzzle. When the projectile has traveled 1,000 yards it is still moving at the rate of 2,619 feet per second, just sufficient to carry it through 21½ inches of harveyized nickel steel, or 17 inches of Krupp armor. At 2,000 yards it moves 2,450 feet per second and would pierce nearly 20 inches of harveyized steel, or nearly 16 inches of Krupp. At 3,000 yards it would still be going at the rate of 2,291 feet per second and would go through 18 inches of harveyized steel, or 14½ inches of Krupp.

Turning to the smaller guns, a half dozen or more of which may be ranged in a battery on one side of the Indian Head ravine, the tests show that a 14-pounder, 3-inch bore rapid-fire rifle, weighing a little more than three-quarters of a ton, throws a 14-pound projectile from its muzzle at the enormous rate of 3,000 feet a second. This arm is designed for use in the secondary batteries of battleships and large cruisers, and its mission is to attack the unarmored portions and gun decks of an enemy's ships. Its projectiles, and they can be fired as fast as the gun crew can load them into the breech of the weapon, will go through 3 inches of the hardest steel

at 1,000 yards and about 1½ inches at 3,000 yards. With specially capped projectiles an increased thickness of from 15 to 20 per cent may be penetrated.

Between the deep bellowing of the big rifles there is always present at Indian Head the rattle and bang of the machine guns and small arms. Ease of manipulation and speed in firing are the desideratum of these classes of weapons, and the professors of warology work themselves into a perspiration in determining the merits of these little fellows—little only in comparison with the giants that are pounding away at butts and sections of armor plate propped up at the base of the hills. One of these little automatic guns is found to send 70 projectiles from its muzzle every minute, each projectile weighing three pounds and traveling so fast that the first 65 reach a target two miles distant before the seventieth leaves the gun barrel.

When velocity trials are being conducted the projectiles are fired at targets at a known distance, or through the screens already referred to, in which case the missiles find a lodging place in a bank of dirt, technically designated as a "butt." Some of the Indian Head hills carry in their lacerated bosoms hundreds of tons of metal that have been fired into these butts.

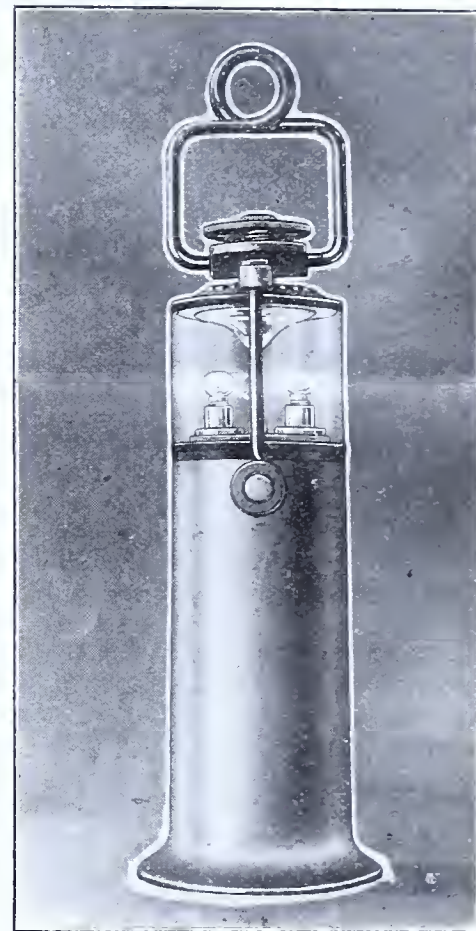
All armor used for the protection of the battleships and other vessels of the navy is tested at Indian Head before acceptance. A full section of the plate is mounted upright on a buttress at the foot of the hill. The hardened steel armor is backed with several feet of substantially built beam structures. Shells and projectiles of various sizes and at various velocities are hurled against the plate by the big guns, and every human device is employed to penetrate, crack, split or otherwise demolish this target. The plate is marked off in sections and each of these is attacked in turn and minute records made of the effect of each of the missiles. At the comparatively short range at which the guns are fired the ultimate fate of the plate is certain, but in its demolition ample evidence is given of the quality of the metal of which it was a sample and of its value as a protective agency at such distances as obtain in a naval engagement.

The test of projectiles is with the view of determining the range at which they may best be used to advantage and of their power of penetration or explosive destructiveness. The Indian Head tests show peculiar pranks of the different styles of projectiles. Some makes flatten out upon contact with hardface steel. Others penetrate the metal and the intense heat they generate in doing so fuses projectiles and plate together as firmly as if they had been joined in a foundry. Others go through, leaving a clean round hole as a token of their achievement. The damaging missiles are those that crack or shatter the armor. Explosive charges in the projectiles are sometimes regulated to go off upon contact with the plates, and at others to burst when they have penetrated the metal.

## MINER'S ELECTRIC LAMP.

A novel miner's electric safety lamp, designed for use with the English Fors accumulator in which electrodes of a circular type are used, is herewith shown. The positive electrode is placed inside a porous pot, while the negative plate completely surrounds it. The grid of the positive plates is cast in one piece, and consists of vertical ribs and horizontal plates forming numerous small pockets. The center of the grid is hollow, and half of the vertical ribs extend inwardly from the outside periphery of the horizontal plates, the others extending outwardly from the inside periphery.

It may be stated that the vertical ribs only extend for one half the depth of the horizontal plates. The result is a strong plate of light weight, not liable to buckle or to shed its paste under a relatively high discharge. At the rates of discharge required for electric safety lamps from 18 to 22 watt hours per pound of complete cell



are obtained.

The one form illustrated consists of a solid drawn aluminum tube with a collar cast on. Trunnion pins carrying a yoke are riveted to the cases by means of lugs, and a setscrew through the center of the yoke serves to hold a lantern firmly in position on the case containing the battery, and makes all the joints airtight. The lamp weighs 3 pounds and is 10 inches high and 3½ inches in diameter.

There are four sizes of the lamps standardized, two being with circular cases for two-volt batteries, and two with square cases for four volt batteries. The lanterns of the two-volt sizes have circular glasses, and are rated to give one candle-power for 12 hours, and three candle-power for 12 hours respectively.

The four-volt sizes give three candle-power for 12 hours and six candle-power for 12 hours respectively and are fitted with bull's-eyelenses and reflectors for powerful beams of light.

There has been devised in Belvedere, Kent, a special miner's electric lighting set for pit shaft sinking, which is in use in the principal collieries in England.

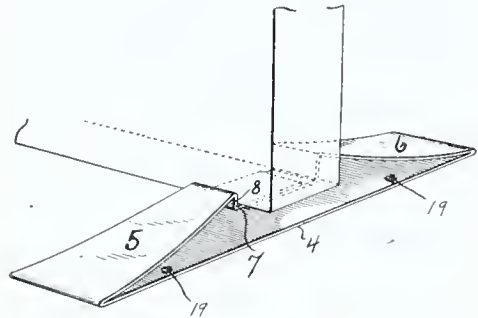


## CLEVER NEW PATENTS.

Door Stop.—Frying Pan.—Guard for Hat Pin.—  
Combined Teeth Separator and Mirror.—Cow-  
Tail Holder.

### Door Stop.

A simple and effective device for stopping and retaining doors, that possesses all the advantages characteristic of this class of contrivances, and is also reversible and may be so placed that the door will approach it from either side, has been patented by Albert F. Peppers, of Oklahoma, Okla. As can be gathered from the accompanying illustration, a blank of sheet metal is formed into a base, portions being turned back to form door guiding elements that extend toward each other. The door guide 5 near its end is formed into a depressed lip 7 that serves pressure to the underside of the door through the spring action of the guide, and the wall 8 creates a stop against which one of the sides of the door may impinge. The guide 6 is similarly made and has a lip that serves pressure to the lip 7, thus com-

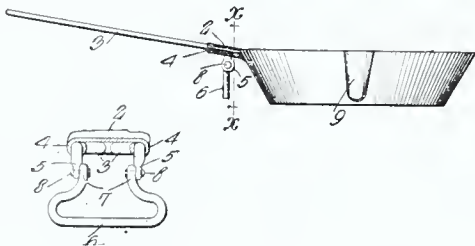


pounding the pressure to the underside of the door. This guide and lip are likewise intercepted by a wall, which acts as a stop for the door, this wall being larger than the wall 8 and rising above it. As the door bottom rides along, the guide will be depressed and carry with it the lip, and after the door is in place the lips will press the door. One lip presses the underside of the door, and the other presses the underside of the lip lying against the underside of the door. The length of the lips may be arranged so as to position the walls at proper distances to accommodate doors of any width. The twofold exertion of pressure described renders the devices more effective for retaining the door, and keeping it from rattling in the stop. The device is simple and durable.

### Frying Pan.

The legion of housekeepers who have scorched their fingers with the hot handle of a frying pan, in some emergency when the food was burning and no holder handy, will welcome an improved device patented by Enoch S. Wheeler, of Centralia, Wash. His pan, which also has special arrangements to prevent its being accidentally tilted, is formed of sheet steel, and has on its rim a stub 2 (see illustration) adapted to receive an auxiliary handle. The stub has its lateral edges rolled under into tubular form, these tubular portions tapering toward their outer end. The handle is of U-shape to define arms which are within the tubular edge portions of the stub. The arms are held to the stub by bending the latter therearound and filling in between the parts with solder,

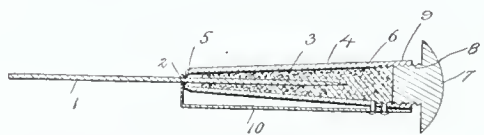
or by brazing the parts together. The inner edges of the arms diverge downwardly and end in eyes 5, which are pivoted through pintles to eyes 7 in the upper ends of the leg 6. This is seen in the smaller cut herewith, which gives a sectional view. The pintles fit frictionally tight in the eyes, to provide against the casual collapsing



of the leg, and yet allow the angle to the same to be forcibly changed, so that the leg will support the utensil not only when the same rests on the top of a stove, but also when the utensil projects downwardly into the lid-hole. The utensil has oppositely disposed spouts, for the convenience of a person who is left handed as well as one who is right handed. It will be seen that the handle will remain cool, and may be kept clean without trouble.

### Guard For Hat Pin.

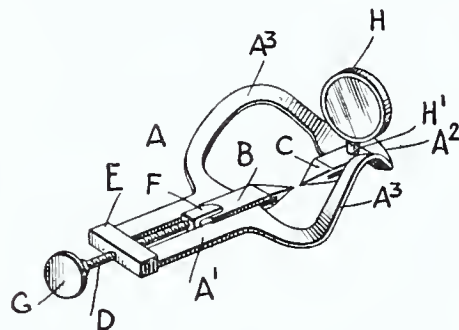
So many accidents have been caused by the sharp ends of long, projecting hat pins, that this small and apparently inoffensive article has come to be regarded with mistrust, and laws have been passed in some countries to regulate the use of the same. Various methods of guarding the end have been tried, but they are mostly clumsy and difficult of adjustment, or else become so readily displaced as to be ineffective in practical employment. Something better in this line has recently been patented by Joseph C. Meny, of Germantown, Pa. As shown in the accompanying cut, (which gives a longitudinal section) the pin has an annular groove near its point, and a conical guard having an opening in its small end in which the pin point enters. The guard is hollow and is filled with a cone shaped cork, into



which the pin point is adapted to be forced, so that the guard is held firmly on the pin. The cork is made somewhat too large to fit snugly into the forward end of the guard, as constant use will cause the pin to wear a loose opening in the cork. Therefore the head 7, as seen in the cut, has a screw threaded plug thereon adapted to screw down gradually into the large end of the guard 4 as the pin wears an opening in the cork, thus causing said opening to be closed as the plug is screwed against the cork, forcing it farther and farther into the small end of the guard. The guard is held in place on the pin by a spring that engages the groove. Rubber or some other desired material may be substituted for the cork. After the pin is inserted into the cork the cap may be screwed in, thereby wedging the cork around the pin.

### Combined Teeth Separator and Mirror.

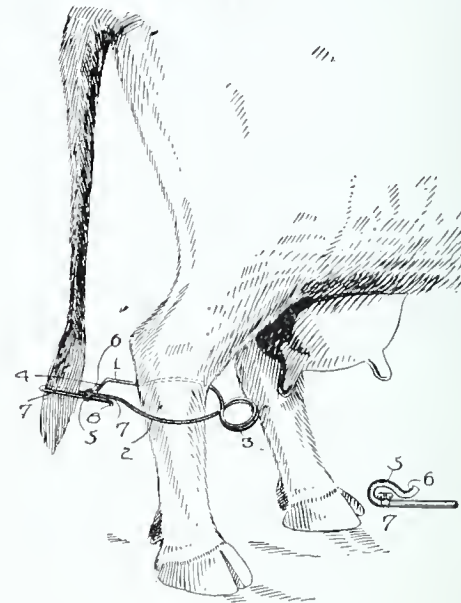
In filling teeth, the dentist is often obliged to reflect the cavity by use of a mirror held near the under surface of the tooth, the mirror serving to illuminate the cavity. At the same time it is necessary to use a device for separating the teeth, and it is frequently found inconvenient to handle so many implements at once. An ingenious little invention by Benson L. Miller, of Kingston, N. Y., combines the mirror and teeth-separator in such a way that the dentist can readily turn the glass to illuminate and reflect the cavity on which he is obliged to work, and at the same time have both hands free to attend to the filling. The mirror is also of service in doing other dental work. The device consists of a frame having front and rear



guideways for jaws to slide in, the ways being connected by side arches adapted to reach over the teeth in the mouth. The jaws are in transverse alignment with each other and are provided at their opposite ends with points adapted to pass between a pair of teeth to separate the same. A screw rod *D* screws in a nut on the outer guideway *A*<sup>1</sup>, the inner end of the screw rod being mounted to turn in a bearing on the jaw *B* and its outer end having a handle *G* for turning the rod so as to move the jaws *B* inward or outward when applying or removing the dental implement. A vertical opening in the rear jaw has a transverse slot, and the said opening engages the stem of the mirror on the jaw *C*, which is locked thereon and has its reflecting surface extending in a forward direction so as to reflect the cavities of the teeth to be treated. When it is wished to remove the mirror from the separator and to use the latter alone, the mirror is given a half turn so as to move the notch out of engagement with the rear guideway to permit of lifting the mirror out of engagement with the jaw. The utility of the device is obvious.

### Cow-Tail Holder.

There are few experiences in life more unpleasant and more provocative of profanity than to have the tail of a cow that is being milked brush across the face of the milker. A simple device for preventing this, which can be easily adjusted and cannot annoy the animal, has been patented by Leuellin O. Junkin, of Starkville, Miss. It is composed of a pair of howed arms, connected at their inner ends by a coiled spring. The arm 1 has near its outer end a laterally bent portion 4 which terminates in a hook 5, this having an upturned tip. The arm 2 extends beyond this bent portion and terminates in parallel spring arms 7, one of which has an outturned portion 8. It will be seen that by the use of the retaining loop, a double locking



means is formed, since the coiled spring 3 will normally hold the arm 2 within the retaining loop 5, but should the spring weaken, the retaining loop will hold the spring arm independently of said spring. When in use the device is placed on the hind leg of the cow, and the tail of the animal is slipped within the out-turned portion 8 and back between the two spring arms 7. These spring arms 7 will grip the lower portion of the tail and securely hold the same. The arm 2 will then be placed in the loop 5 by means of the up-turned tip 6. In this manner a tail holder has been constructed of a single piece of wire, so formed as to produce an efficient means of preventing the cow's switching her tail, and of a character to be cheaply placed on the market.

## PATENTS

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## LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

### SIMPLEX ELECTRIC HEATING CO. v. LEONARD et al.

(Circuit Court of Appeals, Second Circuit. Nov. 11, 1912. 200 F. R. p. 581.)

#### PATENTS—INFRINGEMENT—ELECTRIC HEATER

The Morford patent, No. 490,034, for an electric heater, in which the heating coils are imbedded in a coating of adhesive insulating enamel, or its equivalent, applied to the upper surface of the metal base, cannot be construed to cover glass as an equivalent, in view of the express disclaimer of such material by an amendment of the application while pending in the Patent Office, to avoid references cited by the examiner. As so construed, held not infringed.

### NATIONAL ELECTRIC SIGNALING CO. v. TELEFUNKEN WIRELESS TELEGRAPH CO. OF UNITED STATES et al.

(Circuit Court of Appeals, Second Circuit. Nov. 11, 1912. 200 F. R. p. 591.)

#### 1. PATENTS—VALIDITY AND INFRINGEMENT—APPARATUS FOR WIRELESS TELEGRAPHY.

An order granting a preliminary injunction against infringement of the Fessenden patent, No. 706,736, for apparatus for wireless telegraphy, reversed.

#### 2. PATENTS—INFRINGEMENT—APPEAL FROM INTERLOCUTORY ORDER—FINAL DISPOSITION OF CAUSE.

The Circuit Court of Appeals, conceding its power, will not dismiss a bill for infringement on a patent on appeal from an order granting a preliminary injunction, where the patent contains a large number of claims which have not been adjudicated, and the record does not show which complainant relies on, nor contain evidence upon which the questions of validity and infringement of some of them can properly be determined.

### CROWN CORK & SEAL CO. OF BALTIMORE CITY v. BROOKLYN BOTTLE STOPPER CO. et al.

(Circuit Court of Appeals, Second Circuit. Nov. 11, 1912. 200 F. R. p. 592.)

#### PATENTS—CONTRIBUTORY INFRINGEMENT—LICENSE CONTRACTS.

A maker of caps or seals for bottles adapted to be applied by patented machines sold by complainant, under license contracts binding the purchasers to use thereon only caps or seals made by complainant, who sold product to owners of such machines, on which they were used, with knowledge that there were practically no other machines on which they could be used, was chargeable with contributory infringement of the machine patent.

### STANDARD PLUNGER ELEVATOR CO. v. STOKES et al.

(Circuit Court of Appeals, Second Circuit. Nov. 11, 1912. 200 F. R. p. 766.)

#### PATENTS—CONSTRUCTION—INFRINGEMENT.

United States patent No. 899,224, for a hydraulic elevator, in which the invention consisted of supplementing the force of the water pump by that derived from a water column, held not infringed by defendants' structure, comprising a compressed air exhaust tank with a short loop exhaust pipe containing a perpendicular water column of no considerable height, intended to operate only as a safety valve, and affording no considerable static pressure.

### STANDARD PLUNGER ELEVATOR CO. v. STOKES et al.

(Circuit Court of Appeals, Second Circuit. Nov. 11, 1912. 200 F. R. p. 770.)

#### PATENTS—SUIT FOR INFRINGEMENT—PRELIMINARY INJUNCTION—PLUNGER ELEVATORS.

An order affirmed, which denied a preliminary injunction against infringement of the Larsson patent, No. 963,905, for a plunger elevator, unadjudicated, on the ground that infringement was not shown with sufficient certainty.

### SAYRE et al. v. MCGILL TICKET PUNCH COMPANY.

(District Court, N. D. Illinois, E. D. Oct. 3, 1912. 200 F. R. p. 771.)

#### 1. PATENTS—INFRINGEMENT—PLEADING—MULTIFARIOUSNESS.

Where the same acts constitute both infringement of a patent and unfair competition, causes of action for each may be joined in the same bill, and will not render it multifarious.

#### 2. TRADE-MARKS AND TRADE-NAMES—SUIT FOR UNFAIR COMPETITION—SUFFICIENCY OF BILL.

Injunctive relief in a case of unfair competition by imitating a patented article should not be decreed by any acts which would not constitute unfair competition after the patent has expired, and where a suit for such unfair competition is joined with one for infringement, the bill must disclose a fraudulent appropriation of those insignia or arbitrary features of the device, which do not enter into the question of infringement.

#### 3. TRADE-MARKS AND TRADE-NAMES—"UNFAIR COMPETITION."

"Unfair competition" is the passing off, or attempting to pass off, upon the public the goods and business of one as being the goods and business of another.

#### 4. WORDS AND PHRASES—"PALM OFF."

To "palm off" means to impose by fraud; to put off by unfair means (citing 6 Words and Phrases, p. 5159).

### DAVIS v. HALL MAMMOTH INCUBATOR COMPANY.

(Circuit Court of Appeals, First Circuit. Dec. 9, 1912. 200 F. R. p. 958.)

#### 1. PATENTS—INFRINGEMENT—PATENTED COMBINATION.

Where one element of a patented combination is capable of use for other purposes than as a part of the combination, its sale by the owner of the patent separately does not carry the right to use the entire combination, and such use by the purchaser is an infringement.

#### 2. PATENTS—INFRINGEMENT—HEATER AND INCUBATOR.

The Hall patent, No. 692,277, for a heater in combination with an incubator, held infringed.

### HENNEY v. NEW YORK CENT. & H. R. R. CO.

(District Court, S. D. New York. Dec. 4, 1912. 200 F. R. p. 960.)

#### PATENTS—VALIDITY AND INFRINGEMENT—OZONIZER.

The finding of a jury that the Henney patent, No. 974,789, for an ozonizer, was valid and infringed, held sustained by the evidence.

### RYDER et al. v. LACEY.

(District Court, N. D. New York. Dec. 9, 1912. 200 F. R. p. 966.)

#### 1. PATENTS—VALIDITY AND INFRINGEMENT—SILO.

The Harder patent, No. 627,732, for a silo, claim 4, construed on a motion for a preliminary injunction, and held valid against the claim of anticipation, and infringed.

#### 2. PATENTS—CONSTRUCTION OF CLAIMS.

Unless a patentee has especially limited himself to a specific form of construction, or such limitation is imposed by the prior art or by the action of the Patent Office, acquiesced in by him, he is entitled to a broad construction of his claims in accordance with the language thereof.

### HLIDRETH v. AUERBACH et al.

(District Court, S. D. New York. 200 F. R. p. 972.)

#### PATENTS—TITLE—EFFECT OF ASSIGNMENT OF INVENTION.

An interest in an invention and an inchoate right to a patent therefor may be assigned, and when so assigned, the legal title to the patent, when issued, vests in the assignee, although it may be issued in the name of the inventor; and it is not essential to such vesting of the title that the assignment shall contain a request to the Commissioner of Patents that the patent shall issue to the assignee.

### GIBSON OAT CRUSHER CO. v. CITY FUEL CO.

(Circuit Court of Appeals, Second Circuit. Nov. 15, 1912. 201 F. R. p. 100.)

#### PATENTS—INFRINGEMENT—FEED CRUSHER.

The Gibson patent, No. 923,966, for a feed crusher, in view of the narrow construction

required by the prior art, held not infringed by the machine of the Bell patent, No. 796,255.

### F. F. SLOCOMB & CO., Inc. v. A. C. LAYMAN MACH. CO.

(District Court, D. Delaware. Dec. 6, 1912. 201 F. R. p. 101.)

#### PATENTS—SUIT FOR INFRINGEMENT—EVIDENCE—ORDER OF PROOF—DAMAGES.

Officers of a corporation defendant, in a suit for contributory infringement of a machine patent by furnishing repair parts to users of such machines, cannot be required to testify to the details and extent of defendant's business, or the various persons to whom it has sold repair parts, etc., in advance of a determination of the questions of validity and infringement of the patent.

### G. RICORDI & CO. v. MASON.

(District Court, S. D. New York. Oct. 30, 1912. 201 F. R. p. 280.)

#### COPYRIGHTS—INFRINGEMENT—DRAMATIC COMPOSITION—"ANY OTHER VERSION"

Copyright Act March 4, 1909, c. 320, § 1 (b), 35 Stat. 1075 (U. S. Comp. St. Supp. 1911, p. 1472), which gives to one obtaining a copyright the exclusive right "to translate the copyrighted work into other languages or dialects or make any other version thereof," as applied to an opera, does not include a publication in nondramatic language, merely outlining the plot or theme and detailing the incidents, in such a way as to give in the fewest words possible the so-called story, and such a publication by another is not an infringement.

### G. RICORDI & CO. v. MASON et al.

(Circuit Court, S. D. New York. Dec. 4, 1911. 201 F. R. p. 182.)

#### COPYRIGHTS—INFRINGEMENT.

A booklet entitled "Opera Stories," by which the author sought to give a mere fragmentary and superficial idea of the plot and characters of various operas, each scene being covered by a single paragraph and taken from descriptions other than the operas themselves, was not an infringement of the copyrights on the librettos.

### G. RICORDI & CO. v. MASON.

(District Court, S. D. New York. Oct. 31, 1912. 201 F. R. p. 184.)

#### COPYRIGHTS—INFRINGEMENT—OPERAS—"MAKE ANY OTHER VERSION THEREOF"

Copyright Act March 4, 1909, c. 320, § 1, 35 Stat. 1075 (U. S. Comp. St. Supp. 1911, p. 1472), gives to the owner of a copyright the exclusive right to translate the copyrighted work into other languages or dialects, or to make any other version thereof, if it be a literary work, etc. Held, that the words "make any other version thereof" were not to be strictly construed, so as to include mere abridgements or versions of copyrighted plays and opera, and hence a booklet, giving a mere fragmentary description of the various scenes of operas, and entitled "Opera Stories," not taken from the librettos, was not an infringement of the copyrights on the librettos.

### JOHNS-PRATT CO. v. E. H. FREEMAN ELECTRIC CO.

(District Court, D. New Jersey. Dec. 13, 1912. 201 F. R. p. 356.)

#### 1. PATENTS—INVENTION—COMBINATION OF OLD ELEMENTS.

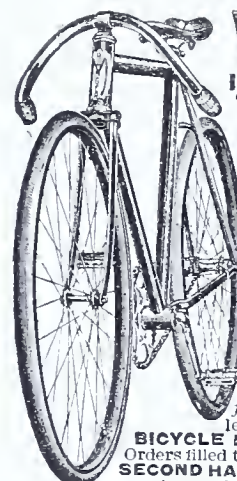
Each and every separate element of a combination may be old, and yet the combination may show patentable novelty and invention if the several elements so coact as to produce a result which is either new in itself, or by means of such coaction is produced in a novel or improved way.

#### 2. PATENTS—ANTICIPATION—PRIOR ART.

A patent is not in the prior art with respect to another which at the time of its issuance was pending on application in the Patent Office.

#### 3. PATENTS—VALIDITY AND INFRINGEMENT—SAFETY-FUSE.

The Sachs patent, No. 660,341, for a safety-fuse, consisting of a combination of elements, the most important of which is a thin, flat safety strip of rapidly oxidizing metal, of extended area, and maximum contact with the nonconducting filling in the case, was not anticipated, and discloses patentable novelty and invention; also held infringed.



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## MECHANICAL INVENTIONS

Patents for which have been procured through the Patent Soliciting Office of E. G. Siggers, Patent Lawyer, Washington, D. C.

Philip Bernard, Sioux City, Iowa. Two patents. Hog Waterers.—It is the aim of the invention of the first patent to enable an ordinary lamp to be employed for heating the water, and to provide a metallic chimney having heat outlets located beneath an interior tank and also beneath the bottom of an exterior drinking trough, so as to prevent the water contained within the trough from freezing in any kind of weather. The apparatus comprises in its construction an outer jacket having an opening, a tank located within the jacket above the said opening, an outer metallic trough mounted on the exterior of the jacket and covering the opening thereof and provided at an intermediate point between its top and bottom with a horizontal partition forming an upper drinking compartment and a lower space or compartment located at the said opening and communicating with the interior of the jacket, an outlet connecting the tank with the drinking compartment, and a lamp located within the outer jacket below the tank and provided with an approximately T-shaped metallic chimney forming opposite horizontal arms provided with end walls having apertures, one of the arms extending through the opening in the jacket into the space below the said partition and the other arm being extended inwardly towards the center of the tank.

The object of the invention of the second patent is to provide a hog waterer equipped with troughs arranged to supply two separate hog pens, and adapted to be constructed of sufficient size to permit cattle to drink from it. It is also an object of the invention to enable an ordinary lamp to cause a sufficient amount of heat to circulate around the tank to prevent the water therein from freezing. The hog waterer consists of an outer casing, a cover therefor having a vent opening, a tank supported within the upper portion of the outer casing in spaced relation with the cover and with the said casing to provide an intervening space, drinking troughs mounted on the exterior of the outer casing and communicating with the tank, and a jacket surrounding the troughs and connected at its upper edge with the same and having its side edges secured to the outer casing so as to enclose the space along the sides and bottom of the troughs. The jacket forms a compartment below the troughs for the reception of a lamp, and the upper casing is provided with an opening communicating with the compartments to permit the heat from the lamps to pass upwardly through the space between the outer casing and the tank, and over the latter to the vent opening in the cover.

Clarence J. Bradley, Bowling Green, Mo., inventor; George G. Ogden and Wm. S. Wilhoit, Ashley, Missouri, assignees. Form for Cases, Boxes, etc.—It is the aim of the present invention to provide a form adapted to hold the sides, ends, bottoms and partitions of receptacles in assembled relation while they are being nailed together, and equipped with means for enabling the nails to be accurately driven at the proper points, so that egg cases and other receptacles shipped in a knock-down condition may be quickly and accurately set up without liability of any mistake in nailing the parts together. The form includes a base, fixed supports mounted on the base and spaced apart to permit a vertical

partition to be arranged between them, side members hinged to the base for clamping the sides of a receptacle against the supports and provided in their vertical edges with recesses, a top member hinged at one of the side members for clamping the bottom of the receptacle upon the fixed supports, said side and top members having bars arranged in the plane of the partition and provided at intervals with recesses to permit the bottom and sides of the receptacle to be nailed to the said partition, end members hinged to the base and provided in their vertical edges with recesses coinciding with the recesses of the side members and adapted to permit the sides and ends of the receptacle to be nailed together at the corners thereof.

Frank E. Beardsley, Traverse City, Mich., inventor; Wm. Godfrey, Sault Ste. Marie, Mich., assignee. Fountain Brush.—This invention has for its object to provide a fountain brush designed principally for use as a combined bath brush and spray, and equipped with means for holding a cake of soap and for subjecting the same to the action of the water for making a lather, whereby the brush may be employed for soaping and scrubbing and as a clear water spray. The device comprises a brush having a soap receptacle and provided with passages extending therefrom, means for supplying the receptacle with water, and a revolving soap holder mounted within the soap receptacle and having blades arranged to be engaged and actuated by the water passing through the soap holder.

Sawyer D. Clark, Boulder, Colo. Trap Attachment for Fly Screens.—The present invention is designed to provide a fly trap adapted to be readily applied to door and window screens without necessitating any alteration in the construction of such screens and without cutting the wire gauze or permitting the same to sag. Another object of the invention is to equip the fly trap with means to enable the captured flies to be easily destroyed and readily removed. The device, which is employed in connection with a screen having top horizontal entrance slots, comprises a trap frame secured to the screen frame and fitted against the screen material thereof and having inclined bottom bars extending to the side bars of the screen frame and provided at their lower ends with openings, a sheet of screen material supported by the trap frame and extending to a point above the horizontal entrance slots, which communicate with the interior of the trap, guards located adjacent to the horizontal openings to prevent the escape of the captured insects, and closures for the bottom openings. The trap attachment, which presents a neat and attractive appearance, also operates to brace a door or window screen and prevent the same from sagging.

Effie L. Fackler, Champaign, Ill. Basket Support.—The object of this invention is to provide a device designed for supporting a basket or other receptacle in an elevated position, and adapted to be shipped or stored in a compact knockdown condition, and capable of being easily and quickly assembled for use. The support or stand comprises a plurality of coacting members, each composed of a strip of material having a medial upright portion and at the upper end thereof bent outwardly and then upwardly, and at the lower end of the said upright portion bent downwardly and outwardly at an inclination, the said members being secured together at their upright portions in parallel spaced relation, the outwardly and

upwardly extending portions constituting supporting arms for the reception of a basket, and the downwardly extending portions forming supporting legs.

Cyprien Grenier, Coaticook, Quebec, Canada. Stretching Implement.—The purpose of this invention is to provide an implement, designed for stretching electric wires, fence wires, and for use in various other stretching and pulling operations, and capable of enabling a relatively great force to be easily exerted in stretching or pulling. Another object of the invention is to enable the device to be used as a jack for pushing or exerting outward pressure for various purposes. The implement comprises in its construction a rotary sleeve having right and left hand screw threads, slidable rods provided with right and left hand threaded portions engaging the threads of the sleeve, ratchet mechanism for rotating the sleeve, and a support having bearings for the rotary sleeve and provided with guiding means having a slidable connection with the rods for holding the same against rotary movement.

Wm. S. Hazelton, North Chicago, Ill. Wire Fence Builder.—The present invention is designed for stretching wire in the construction of fences, and in splicing cut or broken wires with either a direct or loop splice, and capable also of readily taking up the slack in a fence wire. The wire fence builder includes a pair of tongs composed of two levers pivotally connected adjacent their outer ends and provided beyond the pivot with coacting jaws, and wire-engaging clamps carried by the levers and located at points between the pivot and the inner ends of the levers, one of the clamps being pivotally mounted and the lever upon which it is mounted being provided at the outer side with a stop arranged in the path of the pivoted clamp for maintaining the same in alignment with such lever during the stretching operation.

Fred I. Hodge, Middletown, Conn. Steering Wheel.—The present invention has for its object to provide a nonsplitting and nonwarping steering wheel designed for use on automobiles, trucks and various other motor vehicles, and adapted to afford a firm and secure grip and prevent the hands of a chauffeur from slipping without necessitating wrapping the rim with tape, cord or the like. The steering wheel consists of a rim and a spiral wire grip encircling the rim, the latter supporting the inner and outer portions of the coils of the spiral grip throughout the entire periphery of the wheel and being provided with seats receiving and maintaining the coils of the spring in spaced relation, whereby the coils are held in fixed relation and are enabled to form a rigid grip.

Alphonso C. Ingerham, Greenville, Mich. Wrench.—This patent covers a wrench of the spanner type primarily intended for hose couplings, and capable of double action in that it may be turned either to the right or left to screw or unscrew the members of a hose coupling without disengaging the tool. Another object of the invention is to provide a duplex wrench having two separate sets or pairs of engaging means, one set or pair being arranged at each side of the tool, so that the wrench can be quickly applied without the necessity of ever reversing it. The wrench comprises a handle, a U-shaped yoke centrally connected to the handle and provided with oppositely disposed correspondingly shaped arms,

inverted T-shaped heads formed on the free ends of the arms and arranged substantially parallel with respect to each other, each head being formed with two curved duplicate hooks individually arranged on opposite sides of the arms, whereby the wrench is rendered both double acting and duplex.

Miles D. Joyner, Savannah, Ga. Two patents.—Cross Heads for Locomotive.—The first patent covers a cross head equipped with longitudinally adjustable gibs designed for use on any cross head having two bar guides, and capable of ready adjustment to take up the wear and to maintain proper slidable contact with the guides. A further object of the invention is to enable the gibs to be securely fastened to the cross head and to afford practically the strength of a solid cross head, which is capable also of ready removal for tinning, rebabbiting or other purpose without disconnecting either the main rod or the piston from the cross head. The device comprises a cross head having at each side top and bottom projecting side walls, tapered longitudinal gibs adjustably arranged at top and bottom of the cross head and fitting against the same between the said walls and provided at opposite sides with longitudinal caps fitted on the outer longitudinal edges of the projecting side walls of the cross head, and clamps for securing the gibs to the cross head. The clamps consist of approximately L shaped straps engaging the caps and having inner threaded ends, a transverse plate extending across the cross head and receiving the threaded ends of the straps, and nuts arranged on the threaded ends of the straps and engaging the transverse plate.

It is the aim of the invention of the second patent to improve the gib fastening means of the first patent, and to provide means for lubricating the upper and lower guides adapted to hold a quantity of lubricant, so as to maintain the guides in a lubricating condition for a considerable length of time. The clamp for securing the gibs to the cross head is composed of two sides provided at their outer ends with inwardly extending jaws and having teeth for engaging corresponding teeth on the gibs, a transverse bar fulcrumed on the cross head and formed integrally with one of the sides of the clamp and having an opening receiving the other side, and means for adjustably connecting such side of the clamp with the transverse bar. The gibs, which are tapered longitudinally, have hollow rear portions forming upper and lower lubricant chambers, the upper gib being provided at the top with an outlet leading from the lubricant chamber to the upper guide, and the lower gib having a bottom outlet leading from the lower lubricant chamber to the lower guide.

Eugene V. Knight, and Clarence E. Cassatt, New Albany, Ind. Mail Box.—The object of this invention is to provide a mail box adapted to hold safely mail matter, and capable when released from a catch of opening automatically and of insuring a rapid and complete discharge of its contents. The device comprises a stationary back, a box hinged at the top to the back and arranged to swing outwardly and inwardly to open and close it, a catch mounted on the box at the bottom thereof and adapted to engage the back to secure the box in its closed position, and a push button mounted in the back at the lower edge thereof and adapted when moved inwardly to operate the catch.



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**FOR SALE**—Patent No. 1,041,904, dated Oct. 22, 1912. Elevator Safety Clutch. Very simple and inexpensive to construct. Works to perfection. Address, James F. Tighe, No. 883 Belmont Ave. W. Philadelphia, Pa. jy

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**FOR SALE**—Patent No. 1,046,516, granted Dec. 10, 1912. Hose protector, designed to be inserted in a shoe to prevent boot blacks from soiling the hose, when shining or scrubbing low shoes. Will fit any shoe. Can be manufactured very cheap. Address, William Washington, 135 East Broad St., Burlington, N. J. jy

**FOR SALE**—Power Brake for Automobiles. Operates cone-nut clutch by novel means. Is pedal operated. If interested, copy of patent and full particulars sent on request. George J. Clayton, 317 Linwood, Ave., Lakewood, N. J.

**FOR SALE**—U.S. Patent No. 1,043,470. A device for rounding circular saws. All mill men want them. Are inexpensive to manufacture, and of a durable nature. Will round any mill saw quickly and perfectly. Adjustable to any lead required. Address, W. M. Sellers, R. R. No. 8, Williams, Indiana. jun

**FOR SALE**—Dam. Patent No. 1,047,342. Concrete, convex upstream ends, dovetailed into banks; reinforced with railroad rails or rods. Foundation 40 feet below streams bed. Withstands floods, ice jams, beat or cold. Self-supporting life and property. Absolutely safe. Address, F. L. Vars, Nile, N. Y. jun

**FOR SALE**—Locking End Gate Fastener, Patent No. 1,040,779. A quick working device. Easily made. Can unlock a dozen at the same time screwing one rod. Safer than rods. Patents in U. S. and Canada. Will sell outright for cash. Every farmer wants one. J. W. Schroeder, Freeman, S. Dak. jun

**FOR SALE**—U. S. Patent No. 1,017,456, issued Feb. 13, 1912. Improvements in tires for automobile wheels. A yieldable tire that is puncture-proof, non-skidding, strong and durable. Will sell outright or on royalty. For particulars address, William Pavlik, Box 132, Bayport, N. Y. jun

**FOR SALE**—U. S. Patent No. 1,054,604. Improvements in lifting jacks and particularly to improvements in screw jacks. A lifting jack having an improved construction and arrangement of operating mechanism whereby the lifting device of the jack may be quickly operated and a maximum amount of power may be obtained with the least exertion on the part of the operator. Address, William Pavlik, Box 132, Bayport, New York. jun

**FOR SALE**—Patent No. 1,030,028, dated June 28, 1912. Spark Arrester. Particularly designed for locomotive smoke stacks. Will prevent sparks and cinders from being ejected therefrom. Simple to build and cheap to manufacture. Address, Stampabar & Rom, P. O. Box 584, Red Lodge, Montana. jy

**FOR SALE** cash or royalty—U. S. Patent No. 1,004,440, Canadian Patent No. 144,030, German 499,659, Great Britain pending. A wonderful mechanical animated toy. Unique advertising medium. Get next. Lifetime opportunity. Address, Charles E. Koester, Estero, Fla. jun

**FOR SALE**—Our patent on a gravitating binge No. 1,046,209, on a cash or royalty basis. Make offer if interested. Address, Marshall & Adkins, Box 106, Crowder, Mo. jun

**FOR SALE**—U. S. Patent No. 1,046,970, patent issued Dec. 10, 1912. Improved mail bag fastener for lock bag. Address, S. E. Chambers, R. F. D. No. 1, Box 4, Glen Easton, W. Va. jun

**FOR SALE**—Patent No. 1,017,424. Adjustable Nut Cracker. Also patent No. 1,037,694, feed bag. Will sell either outright or on royalty. Address, W. D. McBryar, Elizabeth, Pa. jun

**FOR SALE**—U. S. and Canadian patents on puncture proof auto wheel. Best in the market. Will sell state right. Address, Philipp Webner, Box 5, Central City, Ky. my

**FOR SALE**—Cash or royalty or manufacture and place on the market, Patent No. 1,045,643, dated Nov. 26, 1912, a fruit drier. Address, Edward F. Tucker, 621 Park Place, Frederick, Maryland. my

**FOR SALE**—U. S. and Canadian patents on a metallic hay fork, having improved means over all other horse forks, for the safety of persons operating it. Address, Frank L. Baker, P. O. Box 144, Oriskany, N. Y. my

**FOR SALE**—I have several fine inventions for sale. Write for particulars to Miss Alice Haliburton, No. 711 First National Bank Building, Fort Worth, Texas. my

**FOR SALE**—Harvey improvement on power hammer, Patent No. 1,045,548, dated Nov. 26, 1912. For particulars write S. P. Harvey, Box 252, Big Timber, Montana. my

**FOR SALE**—Our Patent Bag Holder, No. 1,018,228, which was granted us Feb. 20, 1912. Those interested, make us an offer. Address, Appleby & Hubbard, Watts Flats, N. Y. my

**FOR SALE**—U. S. Patent No. 1,018,842. To stop street cars from running backwards down hill. It is inexpensive and no complications to it. It works every time. Address, Benj. MacDonald and William Thomas, Cor. Hale St. and Pittston Ave., Yatesville, Pa. my

**FOR SALE**—U. S. Patent No. 1,004,568, issued Oct. 3, 1911. Window Shade and Curtain Support. Best yet. Big money maker. Will sell outright or by states. Address, J. R. Harbaugh, Cicero, Indiana. my

**FOR SALE**—Patent No. 1,042,342, issued Oct. 22, 1912. Curtain Stretcher, Extensible and telescopic frame. Uniform tension on curtain. Adjustable to different sizes. Nothing like it on the market. Address, J. L. Hearn, Corral, Idaho. my

**FOR SALE**—Patent on Wire Stretcher granted Oct. 20, 1912. Patent No. 1,041,727. Best thing invented to handle and stretch barbed wire. Don't handle it with your hands. Staple to same post you stretch from. I challenge the world for a better thing. Address, P. A. Berry, Paducah, Texas. my

**FOR SALE** outright—U. S. Letters-Patent No. 1,043,240, granted Nov. 5, 1912. An Insect Catcher. No more cucumber-bugs, Works rapidly. One man can take care of ten to twelve acres of cucumbers, muskmellons and canteloupes, etc. If interested, write for particulars. Address, Virden Lines, R.R. No. 3, La Fontaine, Indiana

**FOR SALE**—U. S. and Canadian patents Nos. 1,044,501 and 133,694. Improved spark arrester. Has been thoroughly tested on traction engines with success. Extinguishes all sparks which go out in the draft. Has been tested with both wood and straw. Address, Wm. Crawford, Erinview, Manitoba, Canada. jun

**FOR SALE**—Patent No. 1,047,868. Pocket Comb and Brush. This hair brush has great merit and is a novelty within itself. Will sell for cash or royalty. Address, C. H. Williams, P. O. Box 291, Edenton, N. C. jun

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**WANTED**—To buy for cash inventions of merit. Address, Box 309, Petersburg, Va.

**WANTED**—A company formed to handle several new games and small novelties, which manufacture cheaply—turn over quickly—and have big profits. Great mail order opportunity. Will take small amount of cash, and balance stock in company. H. C. Shipman, Ottawa, Canada. jun

**WANTED**—Someone to manufacture and market my patent No. 971,717, which is a keyless portable lock for doors and windows. Address, A. C. Bates, Brownsville, Cal. jun

**WANTED**—Someone to manufacture a toy. Will sell for 25 cents. Patent No. 1,042,678. To manufacture in quantities also on royalty. Address, Joseph L. Hofer, Bridgewater, S. Dak.

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## NEED OF NEW PATENT OFFICE BUILDING.

Some one with a liking for statistics has estimated that if all the printed patents stored in the Patent Office Building were laid end to end, they would form a strip more than sixty nine thousand miles in length, that would reach nearly three times around the world. If these same patents were placed in a pile they would form a mass as high as the Washington Monument, and ten feet square. If they were all placed on one continuous shelf, this shelf would have a length of nineteen miles, and would reach almost half way to Baltimore. From basement to attic, in rooms, in galleries, along corridors and under stairways these patents are stored until there are now over two miles of cases nine shelves high.

Few buildings are more congested and crowded than the one which houses this great bureau of the government. The fire authorities declare that the conditions existing in the Patent Office are dangerous. In certain sections the entire floor of the corridors, except a narrow passageway in the middle, is filled with combustible matter—wood shelving, filled with official documents. The usual precautions against fire are taken, but in case of the unforeseen accident it would be almost impossible for the firemen to cope with such a situation. Nor is this the worst of it. The papers are not—like many government publications, masses of statistics or compilations of little general interest. It is an old story about the farmer who applied for any of the free documents issued by the government printing office, on the ground, as it afterwards transpired, that they made such good material for kindling fires. This does not apply to the papers in the Patent Office. Although there is reason to fear that they also may be food for flames, they are of great importance to the industries of the

country, so much so that their loss would be irreparable. Nor can their number be diminished. It is essential to keep a certain number of copies of all the patents issued, as there is a steady demand for them. Except in the case of a few old patents the edition of which is out of print, the Office is bound to supply them on request. But the number so sent out does not keep pace with the new ones brought in. Hundreds of new patents are issued weekly, and the building is so full that it threatens, like yeast, to spill over at the top. The stock is accumulating at the rate of 100 feet of new shelving a week.

Various expedients have been suggested for dealing with the problem. One is to put another story on the present building; but it is recognized that this would ruin the architectural effect of a peculiarly classic structure. Since the tendency is toward, instead of away from, the art beautification of the capital city, it is hardly likely that this plan will meet with popular approval. Then it has been proposed to dig cellars, with heavy glass windows giving light through from the pavements overhead, around the building, or to erect an additional wing in the court of the present structure, or to rent rooms outside for the storage of the documents. The removal of the copies of patents to another building would greatly hamper the work of the Office. Not only the attorneys practicing before the bureau, but the examiners and clerks themselves would find themselves much delayed and inconvenienced by this arrangement, and it would involve the loss of time, which means money, to the government. The Office is not up to date with its work now, and it would be deplorable if it should be subjected to further hindrance of a mechanical nature. As for the other suggestions, they can serve only a temporary purpose. The only solution is the erection of a new building, a building constructed especially for the work of the Office, large enough not only to house it comfortably as it now is, but to allow for the inevitable expansion of the future. The Library of Congress has thousands of feet of empty book shelves, ready for the publications of years to come. This method should be a model for the architects of the new building for the Patent Office.

Amid these pressing economic considerations, there is another feature of the case that is generally lost sight of. The new building should have accommodations for the models that are now stored elsewhere. Years ago, there were thousands of models in the Office, but the demand for additional space led to their removal and to the destruction of many of them. A few are preserved in the Smithsonian Institute, but the others are wholly inaccessible to the public. These models, if properly classified, offer a history of the progress of invention in this country, and not only the sentimental but the scientific regret their loss. The "retrospective marine exhibition" held in Glasgow last year, led to an inquiry as to the fate and whereabouts of the working originals, or the models, of other great inventions which

have played so large a part in creating problems which modern society has to solve. Many are lost; some are preserved in museums in various parts of the world—the exhibit of locomotives and railway carriages in the Field Museum at Chicago offering one good example of how interesting such an array may be made. Those still in the possession of the government should be displayed in the Patent Office, which is the proper place for them.

The original patent law, dated 1790, required that with each invention submitted for patent there should be sent "a written description, accompanied by a draught or model, and explanations and models." The law of 1870 provided that no model need be furnished unless the Commissioner of Patents required it. This provision arose from the fact that the Patent Office was overcrowded, and that, as the art of illustration improved, the actual model became unnecessary. There were certain types of inventions to which this did not apply, however. Thus, models were always required for perpetual-motion machines, and, until about 10 years ago, for heavier-than-air flying machines. Commenting on this exception to the rule, the Assistant Commissioner of Patents, speaking before the House Committee on Patents last year, said:

"It is interesting to note that we used to require a model in all cases of application for patent for a man-carrying aeroplane, and those models were required until after the Wrights had demonstrated that they could fly in 1903."

Now a written description and drawing of the article for which a patent is desired is all that is exacted of the inventor. Before this latest form of the patent law, however, a provision had been enacted in the legislative, executive and judicial appropriation act of 1908, which vitally affected the disposition of the models already in the possession of the government. This clause directed that all the models should be examined by a committee, that those of historical interest and value should be placed on exhibition in the Smithsonian Institution, and the remainder either sold, returned to their makers or destroyed.

As there were in 1906 157,000 models which, arranged in 291 cases, occupied much room in the Patent Office, the magnitude of this task can be appreciated. Grave protests were made at the time, both by the inventors and by those who had an interest in the preservation of historical relics. It was asserted that no committee even of experts, could possibly decide what models were of historical interest and value, and what should be disposed of, and it was urged that the whole collection was one of immense value as a history of progress and the industrial arts in tangible form. To support this view the veneration of Thomas Jefferson for the Patent Office was cited, and his remark, "Here is the visible history of the American people," recalled.

All this clamor bore fruit, and by an order of 1911 these models, which had been stored in the basement of the House Office Building preparatory to

carrying out the previous direction, were preserved from sale.

All the models prior to 1826 had been destroyed by fire in that year, and 86,000 more were lost in the fire of 1887. In spite of these losses, however, the government still holds an immensely rich collection of these relics. They show, among many other things, the history of the loom, the sewing machine and steam navigation. Among them there is the model of the first steam engine that ran the first cotton gin; one of Silas Farmer's magnetic engines, the first to draw a train; the sewing machines of Howe, Wilson, Singer and Willcox & Gibbs, and the Morse telegraph of 1830-40.

In this medley of inventions are to be found also the models of the Bell telephone of 1876; Edison's phonograph of 1878 and electric lamp of 1880; the House printing telegraph of 1846; Thurber's typewriter of 1843; the Hoe, Bullock and Gordon printing presses; the Savage time clock of 1847 and Blanchard's lathe of 1828. No less interesting, perhaps, than these models of inventions which have played so large a part in civilization are those of purely freakish character or those which owe their value to their inventors' personalities. To this class belong the rocking chair to which an automatic fly fan is attached; Sonnenberg & Richter's electric whale killer of 1852, and, last but not least, A. Lincoln's "means of lifting vessels over shoals," patented in 1849.

In this connection it is of interest to note what has become of the originals of the epoch making inventions of the past. Naturally most have been lost to sight, but some still exist. At the marine exhibition at Glasgow there was shown the first steamship to be put into successful operation in Europe and the first of the armor clads in the British Navy. Stephenson's Rocket, invented in 1829, to be the precursor of the mighty passenger and freight engines of today, is now preserved for the benefit of mankind at the Victoria and Albert Museum in London. Here is also found the original of Hargreaves' web-spinning jenny which was invented in 1764 and put to the test in 1768.

An original device of high interest in these days of tunneling under ground, still exists in New York. It is the first circular shield ever used to construct a tunnel after the present method. Unfortunately it is not available for examination by those interested, as it is deep in the earth under City Hall Park. The first fire engine in America was presented to the Fire Department of Selburne, Nova Scotia, by George III, and it is still in the department's possession. It is a little wooden wheeled wagon about the size of a pony cart, with lop sided leather buckets and a few feet of leather hose. So small is the whole that not more than three men on a side could have manned its levers. On the whole, however, very few of the devices that have helped to change a system of society and economics and build up the conditions of modern life are still preserved to us. This is an additional argument for safeguarding the relics that remain.



### A Rocket Camera.

Taking pictures of towns, forts and other scenes from the sky by means of a camera borne aloft by a large rocket is a method of photography used by foreign army officials. The rocket, says *Popular Mechanics*, is fired by setting in motion a gyroscope, which device holds the camera in its proper position until the rocket has reached a height of about 2,600 feet, when, just as the camera begins to fall, its shutter is released and the photograph is taken. At the same instant a parachute attached to the pocket camera is opened and the entire apparatus descends gently to the ground in about 15 minutes. The gyroscope automatically points the camera in the right direction when the photograph is taken and the complete apparatus is carried over the ground upon a two-wheeled carriage.

### Fireproof Clothes.

The inflammable nature of cotton cloth, especially of the so-called cotton flannels, which have a slight nap, is notorious. Many deplorable accidents can be traced to the use of these materials, and yet nothing has been found, in convenience and cheapness, to take their place. It is good news that a process has been discovered of making them absolutely fireproof, and that without greatly increasing their cost. Fireproof cotton cloth of the kinds formerly placed on the market has been hard of texture, and the first visit to the laundry caused it to lose its resistant qualities. The new material is soft and pliable, wears longer than the ordinary goods, and can be put on the market for only two cents per yard more than the untreated cloth. The process consists merely in soaking the ordinary cloth in a solution of sodium stannate (a combination of sodium and the acid of tin) and then drying it. Then it is put in a solution of sulphate of ammonium, dried, and heated to a moderately high temperature. It is believed that not only will firemen's clothes be treated in this way in the future, but that it will come into general use. Summer clothes for women and children will be prepared in this way; also house furnishings. Many fires have started from the blowing of lace curtains into a gas flame. The new goods absolutely refuses to burn, even when held in the fire. It resists in much the same way as asbestos.

### New Typesetting Machine.

At present there are two kinds of typesetting machines in common use—the linotype and the monotype. Both are somewhat costly, and for the proprietors of small job printing establishments and of many country newspapers, they are an impossible luxury. The intricacy of their mechanism makes them necessarily expensive, and the price will probably not be soon reduced. To meet the demand for a cheaper machine, there has recently been perfected a new and much less complicated apparatus called the castaline.

The castaline, says the *Technical World Magazine*, is a slug-casting ma-

chine, like the linotype. Unlike the latter, however, it possesses no keyboard. Instead, the matrices are assembled by hand, and it is in the designing of the matrix that the inventors have shown their greatest originality. The matrices are made of brass, each an inch square; and the edges carry dies for eight letters, two dies sunk into each of the four edges. On the flat surfaces are bold index letters scientifically arranged to indicate the position of their respective dies, no matter which surface may be upward. The index letters are enameled in colors, and each matrix has its distinctive color. As each matrix carries eight letters, figures or punctuation marks, only a comparatively few matrices are required to compose a font, and since each kind of matrix has a distinctive color for its index letters, it becomes a simple matter to pick up and place the matrices properly in the so-called "stick" or line assembler. The line of matrices is spaced and justified by wedge-shaped steel spacers, after which the assembler is placed in a holder that automatically conveys it to the mould. After the line is cast, the matrices are released and dumped into the compositor's tray. The machine is equipped with two separate cases for holding matrices and two separate moulds for casting, so that two operators may work on the same machine at the same time, each using a different size or face of type, if desired. Both hands may be used in picking up the matrices, and practice to acquire speed is all that is required for any one to become a good operator.

Still greater speed in composition than would ordinarily be possible is attained through a unique system of logomatrices. A logomatrix is a matrix containing eight different combinations of two, three, or four letters respectively, such as "of," "and," "tion," etc. Thirty some logomatrices have been adopted, carrying 240 prefixes, suffixes and common words. To make use of the same number of combinations, any other kind of typesetting machine would require 240 extra keys.

The new outfit will fill a great want, particularly in the smaller offices, where the volume of business does not justify the purchase of a regular linotype machine.

### Wearing Snakeskins.

For once fashion has taken a direction which promises to be of general benefit to humanity. The new idea silences severe critics, and leaves humanitarians nothing to grumble at. Women are shortly to use snakeskins for garments of every day wear. It is a startling suggestion and in view of the horror with which the sex has always regarded the serpent, has a certain picturesqueness about it. Whether the new robes will prove as artistic as expected remains to be seen; but if the fashion thins out the numbers of dangerous reptiles all over the world, humanity will owe a debt of gratitude to the inventor of the new mode.

We may yet come to see python skin sold by the yard, for the python is a

big beast, occasionally reaching 30 feet in length and a foot in diameter. A single skin might thus supply enough stuff to make an ordinary gown on modern hobble lines. The cost will be high, for the largest sized serpents are not met with every day. The market price of skins, in view of the coming demand, says *Chambers' Journal*, has already gone up to a very high figure, and in Borneo, Sumatra, and all over the Malay Archipelago native hunters are scouring the wilderness, tempted by offers of dealers in Paris and Vienna, and killing or capturing every big snake they find.

In Malaya the reticulated python, or rice snake—so called from his habit of frequenting the paddy swamps where small game abounds—is the largest of available serpents. The native hunters look for the tracks they make in their nightly foraging expeditions, and place over each a large cane construction, much on the principle of an eel trap. The python entering this to get at some small animal used as bait, finds himself unable to retreat, and is starved into quietness. Pythons are often captured in the open, which is a distinctly exciting kind of sport. If the hunters should have the good luck to find one asleep, coiled up on some branch or rocky ledge, gorged with his last meal, they throw a net of strong rope over him, and then a long battle begins: for the python combines the strength of a horse with a special inability to understand when he has met his match, it being as much as a dozen men can do eventually to bind and secure a full grown specimen.

But it is not only in Eastern countries that snakes big enough to supply rough material for dresses are to be found. In South America some remarkably large kinds haunt the dense forests, especially of the Amazon. Brazil has its boa constrictors, and in other regions the water-loving anaconda is numerous, growing to a length of 10 or 12 feet, with a girth of a yard in the thickest part, this representing a great deal of available fabric. Then there are countless numbers of smaller snakes, fascinating in pattern and infinitely delicate in coloring. Those that are too tiny for use in garments can be employed for scarfs, muffs, gloves, etc., for it is said that properly prepared snake skin is both soft and durable.

The anaconda is the latest thing in motor coats, and thus used makes an attractive novelty. They are very light in weight, and are said to be extremely durable. Four fair sized skins make a touring coat, but there is some trouble in matching them perfectly.

Fashion has already made such good use of the skins of lizards for purses and hand bags that certain species have been almost exterminated in their native wilds. The alligator has lent its hide to the manufacture of various articles: why then should it be impossible to utilize snake skins in the way indicated? The new material is beautiful and exclusive, and the wearer will be conscious of conferring a benefit on humanity by causing the destruction of creatures which have brought death in many a community.

### Millions Saved by a Piece of Wire.

Nearly one hundred pinnacle rocks, ancient wrecks and other obstructions of the ocean bottom, that have for centuries taken their toll of human life and dollars in ship disasters, have been discovered in the past few months by the United States Coast and Geodetic Survey, says a recent number of *Popular Mechanics*. They have been located in frequented waters along the coast, such as harbor entrances, and the discovery has been due to the use of a new wire drag. This simple device has saved and will save uncounted millions of dollars, and numberless lives. Already it has been used to sweep the entrances to the Panama Canal on the Pacific side, in preparation for the opening of the great waterway, and one dangerous rock obstruction, heretofore unsuspected, has been discovered. This lay right in the path of shipping through the main approach, and had it been found through the costly expedient of running a great ship upon it, the world might have had another marine horror.

Through the old method of sounding with a lead and line, it was impossible to find rocks, wreck spars and other similar obstructions, because the lead, even if it struck these bodies standing perpendicularly in the water, would slip from them and find the bottom level, maybe twenty and maybe a hundred feet below. With the wire drag, even the point of an abandoned or lost kedge anchor can be found immediately. The new drag consists of a long wire carried horizontally through the water, and kept taut and evenly stretched at any given depth by an arrangement of weights and buoys.

Before the advent of the wire drag, the annual average toll of the sea in ships was approximately 1000—about 400 steamships and well over 600 sailing vessels. There is no accurate count of the lives and money lost. Vessels only damaged are not included in this list. How much of this has been saved or will be saved can only be estimated, but a fair example is shown in the harbor of San Luis Obispo, on the California coast. Though a heavy shipping point, this was one of the most dangerous harbors in the country, because of rock formations that lead and line failed to locate. It was "swept" with the wire drag, and every one of the dangers was discovered and charted. New charts have just been sent out by the government.

Last year the oil interests were very heavy losers through damage to ships striking rocks in this harbor, but since it was "swept" no loss from this cause has been reported. Just before the wire-drag survey in this harbor was completed, one vessel, the "Lansing" was damaged to the extent of \$30,000.

It is estimated that several million dollars will be saved annually in this and other parts by the use of the wire drag.

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Hatpin... C. A. Ludwig  
Hat-shaping machine (2 pats.)... L. Stevens  
Headlight controlling device... C. H. Phillips  
Headlight support, Movable... N. G. Krimmel  
Heel-breasting machine... J. H. Pope  
Heel, Removable... L. Kalina  
Hides or leather, Machine for treating... A. H. Kehrhaun  
Hinge butt... H. L. Bradley  
Hinge, Door... C. Keith et al.  
Hinge, Screen door... F. H. McFarland  
Hoisting apparatus... F. J. Sleezer

Honey-shipping case, Combined... J. E. Crane  
Horse releaser... T. E. Kendall et al.  
Horseshoe... F. W. Smith  
Hose, Rubber-lined fabric... B. L. Stowe  
Hover... C. E. Adair  
Humidifier... W. H. Fletcher  
Ice cream freezer... B. A. Casmore  
Ice in skating rinks, Making and maintaining... D. H. Scott  
Igniters, Interrupter for magneto electric... G. Unterberg  
Impregnating... C. Scott et al.  
Incubator... G. H. Lee  
Index card for filing systems (2 pats.)... C. B. Stillwell  
Index system, Card... J. S. Duncan  
Ingots, Treating cast... G. P. McNiff  
Interfolding machine... D. W. Hudson  
Internal combustion engine... C. M. Billings  
Internal combustion engine... W. I. Twombly  
Iron and steel, Improving the quality of malleable... O. Thallner  
Ironing board... C. D. Evans  
Jig roll... J. Macadam  
Joint clamp, Ground... J. C. Vogel  
Key frame guide... L. Avisus  
Key holder... G. W. Miller  
Key ring... J. Milcinsky  
Key ring holder... H. M. Keller  
Kitchen utensil... N. K. Clemm  
Knitting machine attachment... W. H. Horn, Jr.  
Labeling machine... B. F. Brown  
Lace fabric, Twist... A. Burgess  
Lamp, Acetylene... J. W. Larimore  
Lamp, Acetylene... T. Longstaff et al.  
Lamp burner... F. Pujol  
Lamp-cleaning machine, Incandescent... C. W. Beadle  
Lamp socket, Electric... F. Barr  
Lamp-socket shell... H. T. Paiste  
Lamp sockets, Locking mechanism for electric... W. Broad  
Lamps, Guiding apparatus for automobile... G. L. Berg  
Lamps, Pull socket for electric... F. Barr  
Lamps, Shade holder for incandescent electric and other... D. G. Saunders, Jr.  
Lantern... A. J. Huelt  
Lasting mechanism, End... B. F. Stuber  
Latch, Gate... A. A. Sauter  
Latch, Gate... J. T. Wren  
Leather for the manufacture of cue tips and the article produced thereby, Treating... W. C. Martin  
Life preserver... C. R. Boatright  
Light... R. Hager, Sr.  
Lighting fixture... H. V. Willman  
Linoleum into inlaid linoleum presses, Apparatus for feeding a web carrying... F. Wilkens  
Linotypes, Matrix-changing device for Mergenthaler... E. Fjellander  
Liquids or gases, Apparatus for transporting... E. C. Stover  
Load-brake apparatus... W. V. Turner  
Loading machine... G. F. Myers  
Lock bolt... H. Hughey  
Lock for automobile boxes, &c... F. C. Miller  
Locking clamp... T. Suters  
Locomotive for coal cars for use in mining, Electric... L. E. Armentrout  
Loom head motion... H. F. Livermore  
Loom shuttle and bobbin therefor... W. P. Straw  
Loom tensioning device... A. B. Weissenborn  
Looms, Card for Jacquard... G. W. Stokes  
Lubricating system... R. A. McKee  
Magneto interrupter... W. E. Dow  
Mail-box holder... W. Larkin  
Mail-delivery apparatus... P. H. Stultz  
Mail exchange, Electric... W. Lewis  
Mandrel-extractor for boiler tube or flue expanders (2 pats.)... J. W. Faessler  
Manure-loading machine... B. J. and M. J. Desmond  
Margin-stop device... E. Buckingham  
Mattress or cushion... A. Suckoff, Jr.  
Measure, Automatic coffee... J. H. Psikal  
Measuring and dispensing apparatus, Liquid... R. M. Hughes  
Measuring device... J. Skrell  
Measuring instrument... H. Coullery  
Measuring the energy of engines within the cylinder... O. E. Hintz  
Meat-smoking machine... F. Usiger  
Mechanical movement... W. W. Purdom  
Metal-bound box... J. J. Miller  
Metal, Process of and apparatus for delivering molten... G. Mellen  
Milk can (2 pats.)... L. R. Steel  
Milling machine... E. J. Kearney et al.  
Milo-maize-heading machine... J. M. Forshee  
Mitten, Hygienic... W. A. Morrison  
Mixer... G. S. Noble  
Mold... C. W. McDaniel  
Molds, Preparing... W. R. Conard  
Molding compound... W. R. Conard  
Molding machine... H. Tscherning  
Mop holder... E. Nielsen  
Mortising machine... O. C. Wysong  
Motor controller regulator, Electric... J. Y. Porter  
Mouse trap... A. B. Haugen  
Mower... W. Burling  
Mowing machine... C. S. Langton  
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Music representation... D. J. Dickson  
Nail buffer... A. Lomborg  
Nest and segregating device... L. T. Owens  
Net, Reversible... T. Keeper  
Nose bag... J. Zadora  
Nuts, Treating vegetable-ivory... J. C. Denney  
Oar, Bow-facing... T. C. Jewell  
Oil arrester... J. E. Tyler  
Oil burner... G. H. Allen  
Oil burner, Crude... J. R. T. Smith et al.  
Oil refining and coking device... A. Dean  
Oil vaporizer and burner... G. Regondi  
Oiler, Automatic car... J. T. McReynolds  
Oiler, Engine... C. E. Brooks  
Ore concentrator... C. W. Eccleston  
Ores preparatory to magnetic separation, Treating... J. B. Etherington

Ores, Reduction of... G. F. Rendall  
Ores, &c., Treating... A. Guzel  
Organ, Reed... W. F. Bultmann  
Oxide, Reduction of stannic... Z. Metzl  
Packing, Expansible metallic... R. H. Matters  
Painter's table... G. E. Klingaman  
Paper-bag machine... T. J. Sherrard  
Paper-bag machine... M. L. Hirsch et al.  
Paper cutter, Wall... W. Clark  
Paper drinking cup... J. H. Brady  
Paper feeding or delivering device, Automatic... F. Van Benthuyzen  
Paper receptacles, Machine for making... J. T. Bond  
Paper receptacles, Means for parafining closures or caps for... J. T. Bond  
Paper vessel (3 pats.)... C. T. Bloomer  
Paper vessels, Machine for applying end closures to... L. Norman et al.  
Parachute-carrying and disengaging means carried by an aeroplane and attached thereto... A. Jaunus et al.  
Peat-delivering apparatus... J. MacKaye  
Peat laying and cutting machine... T. A. Mighill  
Peeling machine, Vegetable... H. Robinson  
Pen-ejecting holder, Automatic... H. Hanseu  
Pen or pencil holder... H. C. Wiedenmann  
Pen or pencil holder... A. T. Snell  
Pen, Self-filling fountain... J. L. Schnell  
Perambulator, Folding... A. E. McGill  
Perforator, Electric paper... W. J. Koster  
Photographic-print washer... J. A. Robertson  
Photographing objects with projected backgrounds... H. Sontag  
Physician's and surgeon's table... G. L. Poll  
Picture machines, Protective mounting for the lenses of moving... C. Huntoon et al.  
Pipe-coupling-locking device, Train... W. A. Greenlaw  
Pipe remover... J. A. Smith  
Pipe threader... D. Dreier  
Piston, Engine... H. A. Swanson  
Piston, Explosive-engine... F. W. Derby et al.  
Pivot-polishing machine... K. L. Sheets  
Plane... C. Bodmer et al.  
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Planer and scraper, Floor... C. Ekberg  
Planing-mill safety device... J. C. and B. A. Bishop  
Plaster, Corn... J. H. Sparks  
Printing implement... N. P. Jeusen  
Plastering machine... W. H. Reimer  
Plow... W. L. Paul  
Plow, Gang... M. L. Alford  
Plow-point bar... E. Haiman  
Plug, Automatic connecting... J. N. Maas  
Pneumatic cleaning tool... I. H. Spencer  
Portable heater... F. Hickerson  
Powder cup, Tooth... W. Lyon  
Print washing and developing receptacle, Blue... C. H. Leach  
Printing form... W. J. F. Maidhof  
Propulsion of vessels... J. E. Thornycroft  
Pull socket (4 pats.)... H. Hubbell  
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Pump... J. Meklensek  
Pump... W. S. Sutton  
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Pump for cleaners... W. G. Betz  
Pump vent, Automatic... J. F. Haennig  
Pumping mechanism, Centrifugal... J. N. Lewis  
Punching-machine-feeding device, Metal... L. Neumann  
Pyrazolone derivative... F. Stolz  
Pyrographic device... M. B. Baer et al.  
Quilting frame... W. D. Cribbs  
Radiator... K. M. Boblett  
Radiator... L. Loziano  
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Rail fastener... F. Dobmeier  
Rail joint... K. Jasiecki et al.  
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Rails to metal ties, Means for securing... N. C. Feters  
Railway block system... C. Woods  
Railway-crossing gate, Automatic... J. R. Golden  
Railway-rail fastening... I. P. Althouse  
Railway signal... A. Zukor  
Railway-station indicator... H. M. Van Demark  
Railway switch, Automatic... L. Hassell  
Railway tie... H. V. Slutz  
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Railway tie, Metallic (2 pats.)... S. Shoemaker  
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Ratchet wrench... C. O. Osha et al.  
Ratchet wrench... C. E. Bonine  
Reamer... T. M. Platt  
Receptacle... J. Hadfield  
Receptacle... G. B. Wilcox  
Receptacle for containing and discharging semisolid and pasty substances... J. F. Craven  
Receptacle, Merchandise... J. F. Hitchcock  
Reciprocating engine... F. M. Eslick  
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Refrigerating apparatus... W. C. Bacon  
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Rock-crushing machinery... J. Ribeyrou  
Rock drills, Bevel-cutting dies for... C. Brown  
Rock drills, Gaging dies for... C. Brown  
Rock drills, Sharpening dies for... C. Brown  
Roller iron... F. Chatfield  
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Rotary mechanism (2 pats.)... C. F. Mendez  
Roundabout... J. W. Hartley et al.  
Rubber or the like for the utilization thereof, Treating worn or waste... W. E. W. Richards  
Saddle... C. and W. H. Maynard  
Safe lock, Automatic take-up... F. J. Super  
Safe or vault doors, Spindle for burglar-proof... W. H. Taylor

Safety-pin, Needle-eye, Self-locking... H. B. Hudson  
Saw tensioning and straightening machine... T. W. Beach  
Sawing apparatus... G. A. De...  
Scale, Platform... W. H. Drans...  
Scale, Weighing... A. De Vries, Jr.  
Searf pin... G. A. Sch...  
Searf-pin retainer... E. R. Sheppard  
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Scrapping tool, Rotary... M. F. Powell  
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Screw-making machine, Wood... H. P. Townsend  
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Separator... F. C. Nicholas  
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Sewing-machine attachment... D. E. Tela  
Sewing-machine bobbin-case latch... W. A. Mack  
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Sewing machine, Portable chain-stitch... L. S...  
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Shaving mug, Traveler's... H. E. Bizzins  
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Shock absorber... G. C. Martin  
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Shoe fastener... A. J. Neary  
Shoe protector... C. A. Berg  
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Shuttle, Hand-threading... O. Dalfond  
Signaling systems, Transmitter for selective... V. Durbin  
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Sink... G. Zuber  
Skylight... W. A. Mundy  
Slate picker, Oscillating... J. T. Norman  
Sled... D. E. Riley et al.  
Slot machine... C. A. Breyfogle  
Socket wrench... A. C. Sargent  
Spark plug, Electric... F. R. Blake  
Speed indicator... W. Morell  
Spinning ring and holder therefor... M. H. Maloney  
Spinning, twisting and like machines, Hank clock for... A. H. Morton  
Spining, twisting and like machines, Spindle for... A. H. Morton  
Spring seat... B. J. Forster  
Spring wheel... E. H. Fisher  
Spring wheel... E. B. Keemer  
Square, Stair... A. R. Tucker  
Squeezer... R. B. Gilchrist  
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Steering gear... W. H. Keifer  
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Stop mechanism... J. W. Roberts et al.  
Stop-motion mechanism... H. J. Marx  
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Strainer, Fruit... G. B. Livegood  
Strainer, Jelly... K. B. Milks  
Strainer, Tea... T. W. Johnson  
Street-sweeping machine... W. H. Shira  
Structure and means for forming the same... J. E. MacKay  
Stud and socket fastening... M. Furstman  
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Sulky, Child's... R. H. Brown  
Supply box and powder magazine, Safety... T. Doyle  
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Switch-point lock... V. Kohn  
Swivel, Water... G. W. McAllister  
Synchronizing device... L. Gaumont  
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Tea or coffee pot... G. Lefevre  
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Telephone pay station... W. Milford  
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Telephone, Detector for party line... J. W. Nilsson  
Phill and pole holdback lock... F. W. Chickerling  
Threshing machine... E. and J. Kyllonen  
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Tire shoes, Machine for preparing cores  
for reuse in manufacturing pneumatic...  
F. L. Killian  
Tires, Heater for removing.....A. E. Hauck  
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Toilet or like comb.....F. W. Thompson  
Tool holder.....T. Charlton  
Tool, Percussive.....C. H. Hoelscher  
Tool, Pneumatic.....H. E. Le Gendre  
Torches, Wick lifter for.....L. C. Mills  
Toy.....W. S. Hendren  
Trace fastener.....L. H. Jacobs  
Trace hook.....B. S. Kurtz  
Track adjuster and gage.....W. C. Kilber  
Traction engine.....D. T. Timberlake  
Train-control system.....J. Ames  
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Transporter.....G. Lene  
Tray, Developing.....F. W. Quidas  
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Tubing Blank for making perforated.....  
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A. B. Dick  
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Typographical machine.....J. R. Rogers  
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Butt of an.....J. Lutz  
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Valve-controlling appliance.....L. B. Jackson  
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Valve operating mechanism.....T. W. Keen  
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Varnish, Manufacture of.....H. Schluter et al.  
Vault.....W. H. Hollar  
Vehicle body.....P. A. Ellis  
Vehicle frame.....G. H. Jones  
Vehicle-propelling mechanism.....A. Plagman  
Vehicle runner.....A. B. Longenecker  
Vehicle shock-absorbing device.....  
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Vehicle wheel.....J. F. Starbuck  
Vehicles, Throttle-controlling means for  
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Vending apparatus or machine.....  
F. G. Axt et al.  
Vending apparatus, Selective mechanism  
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Vending machine, Automatic.....  
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Vending machine, Coin-controlled.....  
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Waffle cutter.....G. T. Thompson  
Wagon, Log.....J. A. Whittington  
Wall-covering in imitation of real tapes-  
try.....R. W. Newcombe  
Walls, &c., Construction of supports for  
building (Reissue).....J. Brecheaud  
Washing machine.....G. W. Nelson  
Washington machine.....J. H. Glasener  
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Wash tub.....J. H. Gibbs  
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Well-drill wrench.....W. R. Osborne et al.  
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Wheels, Tread-band for pneumatic tire...  
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Whistle, Chime.....A. Cameron  
Window construction, Metal.....G. H. Forsyth

Window screen.....D. P. Moore  
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Wire stretcher.....W. L. Holladay et al.  
Wool-washing machines, Siphon overflow  
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Wrapping machine, Box.....J. P. Markert et al.  
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Adding machine power-drive.....J. G. Vincent  
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Addressing machines, Slug or linotype  
distributor for.....S. C. Cox  
Advertising device.....J. T. H. Mitchell  
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J. P. Bergeron  
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Agitating device.....J. H. Hathaway  
Air compressor.....J. R. Kinney  
Air, Device for the production of pure...  
H. Mestern  
Alarm.....E. C. Ricker  
Ammonia generator.....A. E. Bosse  
Animal catcher.....W. H. Shindoll  
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Antifriction device.....L. H. Backeland  
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Automobile automatic braking device...  
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Binder, Loose-leaf.....H. G. Buchan  
Blinds and doors, Device for locking and  
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Blotter and pencil-holder and ruler, Com-  
bination.....J. E. Mason  
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Blowpipe.....L. L. Bower  
Blue-print machine.....C. F. Pease  
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Bobbin-turning machine.....N. H. Shaw  
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Book.....J. Walker, Jr.  
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Bottle cap and stopper.....A. B. Schrier  
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Broom-making chuck.....E. J. Powers  
Brush and soap holder, Combined shav-  
ing.....A. D. Methven  
Brush blank.....I. H. Abbott  
Brush, Tooth.....G. E. W. Miller  
Bucket, Bait.....T. C. Kennedy  
Buckle.....F. A. Neider  
Buckle, Belt.....L. Sanders  
Buckle, Harness.....E. Hartwick  
Burglar alarm.....J. V. Belamy  
Button and washer for tufting machines,  
Clenchable.....W. E. Buser  
Button-making machine.....J. Hornby  
Buttonhole reinforcement.....A. M. McFadden  
Cabinet, Cheese.....S. S. Phillips  
Can-cap placer.....  
P. S. P. H., O. P., and E. N. Kohler  
Can-filling machine.....W. J. Phelps  
Can-tipping machine.....M. J. Hawkins  
Candle-stand holder, Votive.....J. Jacobson  
Cane-boiling furnace, Sugar.....G. A. Allen  
Canopy for hammocks.....B. B. Stone  
Car construction.....H. E. Haddock  
Car coupling.....W. S. Lennon  
Car grain door.....J. Klinkhammer  
Car, Interchangeable hopper and gen-  
eral-service dump.....A. Campbell  
Car, Passenger.....W. Major  
Car, Passenger.....H. E. Haddock  
Cars, Check holder for mine.....O. E. Dickson

Cars, Elastic suspension for the driving  
wheels of motor.....D. Mesure  
Card-cutting machine.....G. C. Bauman  
Card holder, Price.....W. W. Geddes  
Carpet beater.....W. H. McCullough  
Carriage, Child's folding.....S. D. Butterworth  
Casing spear.....E. L. Mills  
Casket, Burial.....J. H. Yancey  
Casket, Burial.....G. Goodrich  
Casting explosive charges.....E. Sokolowski  
Catamenial sack.....W. G. Robey  
Cellulose lye, Purifying sulphite.....M. Platsch  
Chain-making machine.....F. Speidel  
Chair.....J. Kohn  
Channeling machine.....F. E. Bertrand  
Cheese, Package of Camembert.....I. Masse  
Chuck, Drill.....I. F. Lindberg  
Churn.....C. E. and C. W. Burdeaux  
Cigar-packing machine.....A. Gordon  
Cigarette.....B. E. Teale  
Cigarette.....S. Trumper  
Cigarette holder and igniter, Combined..  
T. Egan  
Circuit breaker.....F. Heath  
Circuit breaker for alternating current,  
No-voltage.....C. C. Badeau  
Circuit-controlling apparatus.....L. H. Thullen  
Cistern cleaner, Automatic.....G. O. La Croix  
Cleaning device.....P. A. Mahon  
Clevis hook.....R. E. Smith  
Clock signal.....A. Mangani  
Clocks by electric waves, Apparatus for  
operating electrical.....F. Schneider  
Closures to receptacles, Applying.....  
T. A. Nissinen  
Clothes drier.....H. C. Boyer  
Clutch, Harvester reel.....M. Zinsli  
Cock, Combination plug.....E. J. Mougette  
Coffee machine.....C. Nelson  
Collar, Contractible.....J. F. Keenan  
Collar, Horse.....H. Hill  
Column staves, Machine for cutting.....  
C. E. Zimmermann  
Combustion engine.....L. Gentzen  
Commode, Bed.....L. M. Sayer  
Concrete floor construction.....R. S. Caw  
Concrete railway cross tie.....  
E. J. Rosencrans et al.  
Condensing apparatus.....C. A. Parsons et al.  
Conduit, Means for controlling flow  
through a.....F. L. Cross  
Conduit system, Vacuum.....O. F. Petersen  
Container and display device.....W. W. Bagley  
Control and pay system.....J. J. Grain  
Conveyer.....G. H. Mueller  
Conveying means.....W. M. Schwartz et al.  
Cooker, Cereal.....T. Eckers  
Coop, Portable poultry.....C. A. Wyman  
Core-mold.....F. Hamilton  
Cotton chopper.....W. C. Longenecker  
Cotton cleaner.....H. J. Davis  
Cotton picker.....P. P. Haring  
Counter cutting machine.....R. A. Lancy  
Counter, Resetting.....E. R. Newall et al.  
Coupon slip.....W. S. Finley  
Crank substitute.....A. J. Jacobson  
Crib.....J. Hudry  
Crucible-furnace.....R. Eickworth  
Crusher.....A. Niedermeyer et al.  
Cuff-press.....W. Bartholomew  
Cuff Protector and blotter.....L. J. Martin  
Culinary appliance.....L. B. Brown  
Cultivator.....W. J. Perry  
Cultivator attachment.....F. Barz  
Cupola furnace.....P. Anderson  
Curling-iron heater.....N. L. Gilbert  
Curtain holder.....R. Peltzer  
Curtain operating device.....J. J. Kale et al.  
Curtain roller.....G. W. Davis  
Dam and constructing the same.....  
N. F. Ambursen  
Dental engine bracket support.....O. H. Pieper  
Dental instrument.....M. Bailey  
Deposit and collection box, Hygienic.....  
E. O. Tetrault et al.  
Defonating cap.....E. Herz  
Diastatic product.....J. Takamine  
Diastatic product, Producing.....J. Takamine  
Die Stock, Threading.....C. Bergrud  
Directory, Telephone.....J. Sontheimer  
Display advertising device, Automatic...  
W. N. Beyerle  
Display device.....J. Stranders  
Door buffer and catch.....P. J. A. Schnoor  
Door fastener.....J. Farr  
Door fastener and alarm, Combined..  
E. Troetel  
Door hanger and track, Sliding (2 pats.)..  
O. Weidrich  
Door hanger, Sliding.....F. H. Lange, Jr.  
Door holder.....E. H. Barton  
Door lock, Auxiliary.....A. Satzman  
Door safety attachment.....E. Troetel  
Door-supporting clamp.....T. E. Moon  
Doors and fastening means therefor, Silo..  
W. Hayward  
Drafting irregular curves, Instrument for..  
A. Gasparich  
Drag, Road.....W. C. Wharton  
Drainage fitting.....R. H. Mitchell  
Dress shield.....N. H. Crocker  
Dressing device for armless people.....  
Q. D. Corley  
Drill socket.....J. E. Morrow  
Drilling machine.....B. F. Barnes  
Drinking fountain.....P. Mueller et al.  
Drinking trough, Sanitary.....J. D. Smith  
Driving bit.....E. J. Mills  
Duplicating machine, Stencil.....A. B. Dick  
Dye, Wool azo.....L. Hesse  
Dyes of the cerulein series, Manufacture  
of.....A. Steiner  
Egg holder.....W. A. Kinney  
Egg lifter.....P. H. Dunn  
Electric apparatus, Vapor.....P. H. Thomas  
Electric appliance, Silica-glass.....  
H. A. Kent et al.  
Electric circuit at predetermined posi-  
tions of a collector, Apparatus for clos-  
ing an.....E. M. v. Marchthal  
Electric furnace.....F. J. Tone  
Electric furnace.....T. B. Allen  
Electric receptacle.....N. D. Rand  
Electric switch.....M. Gnett

Electric trap.....A. Bajluk et al.  
Electrical-circuit controller.....J. H. Lehman  
Electrical distributing system (Reissue)...  
R. C. Leake  
Electrical distribution system.....  
D. B. Moist et al.  
Electrogalvanic generator.....A. Dow  
Electrolysis of salt solutions, Apparatus  
for.....J. Billiter  
Elevator.....A. C. Brantingham  
Engine, Combining air and gas and util-  
izing the same in an internal-combus-  
tion.....G. A. Baehmann  
Engine exhaust, Marine.....A. Mathis  
Engine-hood cover.....C. D. Miller  
Engine starter, Automobile.....  
F. G. McKlveen et al.  
Engine-starting devices, Combination lock  
for.....A. Fournaise  
Engine timer and switch arrangement,  
Internal combustion.....J. M. Rhett  
Engines, dynamos, and batteries, Electric  
and automatic control of.....  
L. Sunderland et al.  
Envelop.....T. W. Grosh  
Exhibitor, Changeable.....I. W. Edwards  
Explosive charge, Cast.....E. Sokolowski  
Explosive compound.....C. F. Dippel  
Extension table.....W. D. Neils  
Eyeglass mounting.....G. J. Lowres  
Eyeglasses.....R. C. Kingsley  
Eyeglasses (Reissue).....J. R. Van Tassel  
Farm gate.....C. C. Gish  
Fastening-inserting machine.....L. A. Casgrain  
Feed bag.....E. L. McAllister  
Feed regulator.....R. V. Craggs  
Feeding apparatus.....J. C. Ahern  
Feeding apparatus.....A. R. Hoffmann  
Fence-post mold.....A. A. Logan  
Fence-wire fastener.....C. L. Arnwine  
Ferrie chlorid, Making.....H. H. Dow et al.  
Filaments for incandescent electric lamps,  
Decarbonization of raw metallic.....  
A. Lederer  
Filing system.....C. M. Probasey  
Fire alarm, Automatic.....H. R. Shirley  
Fire boxes, Forming.....H. W. Jacobs  
Firearm.....C. D. Wilson  
Firearm.....H. P. Maxim  
Fish-net-lifting machine.....K. Paulsen  
Fish-screen, Automatic.....E. Kuiper  
Flat-iron cleaner and polisher.....  
J. H. Soennichsen  
Flies from buildings, Means for exclud-  
ing.....C. B. Gillespie  
Flying apparatus.....G. Vogt  
Flying machine.....S. B. Eversen et al.  
Floor and ceiling plate.....  
C. S. Kuhnsmann et al.  
Floor, Interlocking.....A. Woloshin  
Folding box.....H. J. Williams  
Folding bracket.....C. H. Richardson et al.  
Folding machine.....G. J. Dormandy  
Food product.....F. A. Johnson  
Food products, Process of and apparatus  
for manufacturing dried.....M. Vouga  
Footwear.....H. P. Cole  
Four-cycle engine.....N. B. Wales  
Freezing of water pipes, Device for pre-  
venting the.....C. L. Orser  
Furnace.....J. Harper  
Furnaces, Preparing coke for charging  
blast.....M. C. Steese  
Furnaces, Regulation of regenerative...  
J. H. Gray et al.  
Fuse block and relay protector, Auto-  
matic.....T. B. Jones  
Fuse, Inclosed.....H. R. Williams  
Fuses, Contact for screw plug.....  
W. Klement et al.  
Game apparatus.....H. S. Cowles  
Garbage, Utilizing.....J. T. Davis  
Gas lighter and extinguisher, Automatic..  
P. R. Seamon  
Gas-lighting, Distance.....S. Julian  
Gas mantles, Machine for the manufac-  
ture of incandescant.....J. I. Robin  
Gas purifier.....C. Flossel  
Gasoline engine.....L. L. Meng  
Gasoline-tank outlet.....G. J. Greiner  
Gate.....L. A. Gibson  
Gearing.....J. J. Grant  
Gearing, Automatic change-speed.....C. G. Hall  
Gearing-controlling mechanism, Transmis-  
sion.....B. Center  
Glass-drawing apparatus.....W. A. Jones  
Grading machine.....A. J. and E. E. Akers  
Grain and seed separator.....A. G. Paxton  
Grain drill.....C. A. Pattison et al.  
Graphophone.....T. H. Macdonald  
Grass cutter and trimmer.....G. Slatter  
Grave ornamentation.....M. S. Pottenger  
Grease cup.....B. M. W. Hanson  
Grinding mill.....C. A. Markle et al.  
Ground-working machine.....B. F. Luke et al.  
Guns, Mechanism for automatically fir-  
ing.....G. E. Dietzel  
Hair singer.....E. H. Eldridge  
Hammer for the bushing and cutting of  
granite, Bush.....J. L. Delano  
Hammer, Mechanical or power-actuated..  
W. Blacker  
Harrow and roller, Combined disk.....  
J. W. Hill  
Hat.....J. Cavanagh  
Hat fastener.....K. Keplinger  
Hat-pin-point-protecting device.....  
J. E. Mangold  
Hay and other material, Apparatus for  
unloading.....H. L. Duxstad  
Hay loader.....O. F. Smith  
Hay loader.....A. C. Lindgren et al.  
Head rest.....F. Ritter  
Header, Corn.....H. C. Brown  
Heater.....W. E. Sharp  
Heating appliance.....A. F. Harrison et al.  
Heeling machines, Blank holder for.....  
F. F. Raymond, 2d  
Hinge.....J. B. Loranger  
Hinge, Brush.....F. F. Weiss  
Hoof clipper.....J. E. Arthur  
Hop-cluster machine.....E. C. Horst  
Hop-picking apparatus.....E. C. Horst  
Hop-separating cylinder.....E. C. Horst  
Hops, Picking.....E. C. Horst  
Horseshoe.....H. K. Kiso



Humidor, cork .....	J. H. Taylor	Shoe .....	R. Cohen	Valve for fireless cookers .....	M. Murphy
Hydraulic press .....	R. A. Wilson	Shoe form or last .....	H. M. Fautoux	Valve, Gas-tight coal .....	S. Glover et al.
Hydraulic press .....	B. Gerdau	Shoe, Turned .....	E. H. Wales	Valve, Mixing .....	E. F. Nield et al.
Hydrocarbon burner .....	W. Goyder et al.	Shuttle, Hand threading .....	T. B. Felter	Valve, Packless .....	L. Schreier
Hydrocarbon-feeding system .....	R. H. White	Shuttles, Friction device for .....	S. L. Child	Valve, Piston .....	D. F. Stayman
Incandescent burner .....	F. J. Nice	Side expansion tree .....	J. A. Ballard	Valve stems, Fluid-tight joint for rotary .....	C. F. Tool
Incinerator .....	G. Bourrelly	Sign .....	J. K. Burleigh	Vanadium from carnallite concentrates .....	C. F. Tool
Indicating mechanism .....	E. D. Deunis et al.	Sign, Electric writing .....	H. D. Brown	Extracting .....	S. Fisher
Indigo-white preparations and making same, Stable .....	A. Schmidt et al.	Signal device, Safety .....	E. J. Dunne	Vehicle indicator .....	J. L. Day
Insulator, High-voltage strain (2 pats.) .....	L. Steuberger	Signal device, Vehicle .....	A. H. Lewis	Vehicle, Motor road .....	G. Fornace
Insulators, Means for attaching wires and cables to .....	H. Parra	Silicidizing .....	F. J. Tone et al.	Vehicle recording device .....	S. T. Park et al.
Internal-combustion engine (2 pats.) .....	L. Hilmer, Jr. et al.	Silicidizing articles containing carbon .....	F. J. Tone	Vehicle spring governor .....	W. L. Tufant
Internal-combustion engine .....	C. Rauch	Silo .....	J. G. Branchella	Vehicle support .....	G. C. Hill
Ironing pad .....	C. E. Hamilton	Siphon for dispensing liquids .....	A. E. Schatz	Vehicle-supporting device, Two-wheeled .....	C. W. Smith
Jar closure .....	R. E. Meyer	Skate .....	W. Conron	Vehicle top-securing device .....	D. B. Wasson
Jarring machine .....	R. F. Ringle	Skee .....	G. Johnson	Vehicle wheel .....	W. M. Rank
Journal-bearing .....	E. D. Elkstedt	Slide gate .....	R. C. Force	Vehicles, Curtain-attaching clip for .....	T. Swan
Knit garments, Trim for .....	R. Mueller	Slide gate .....	K. J. Thorsby	Vehicles, Cushioning means for .....	J. L. La Briere
Knitting machine, Circular .....	F. Wilcomb	Smoking pipe .....	R. Wetzel	Vehocipedes, Safety wheel or support for .....	B. Phelan
Knitting machine needle protector and let-off .....	F. Wilcomb	Soda fountain attachment .....	H. A. Griffin	Vending machine, Coin-controlled .....	F. W. Tucker
Knitting-machine pattern mechanism .....	F. Wilcomb	Soldering apparatus .....	W. Ulbrich	Vending meter .....	E. Mattson
Knuckle joint, Dust proof .....	R. M. McGahee	Sole leveling machine, Automatic .....	E. E. Winkley	Vessel closure .....	R. E. Meyer
Ladder, Folding step .....	L. O. Garraway	Sound reproducing machine .....	A. R. Cunnius	Vine grasper .....	G. E. Miller
Lamp attachment .....	L. C. June	Spectacle mounting .....	F. L. Adt	Voting machines, Multi-indorsement-re- stricting device for .....	C. C. Abbott
Lamp for motor vehicles, Tail .....	R. Huff	Spectacle temples, Machine for making .....	R. M. Weston	Wagon, Collapsible .....	A. Peterson
Lamp guard .....	C. T. Childers	Speed recording apparatus, Vehicle .....	A. E. C. Deckert	Walker, Adjustable .....	S. L. Arnold
Lamp socket .....	S. Trood	Spigot .....	M. A. Smirle	Wall bracket, Electric .....	C. L. Bailey et al.
Lamp socket, Incandescent .....	B. H. Irish	Spinning machines, Building motion for .....	D. O. Pease	Wall construction .....	H. H. Hahn
Lamp socket, Waterproof incandescent electric .....	E. L. Schneider	Spring wheel .....	S. D. Brooks	Walls, &c., Machine for erecting .....	V. Cagnassi
Lamp, Vehicle .....	J. E. Allen	Spring wheel .....	O. P. McKee	Washing machine .....	A. T. Loftsgaarden
Lamps, Carbon holder for arc .....	M. C. Warren	Spy-glass, Folding .....	L. C. Stuart	Washing-machine harrows, Claw attach- ment for .....	F. G. Sargent
Land-clearing apparatus .....	G. M. zu Jerrendorf	Stake, Releasable .....	C. W. Jones	Watch .....	W. E. Porter
Last, Collapsible .....	A. L. Stroberg	Stall, Cow .....	O. Erf	Watch, Stem-winding and setting .....	W. E. Porter
Lasting tool .....	F. D. Crosier	Stapling mechanism .....	E. P. Sheldon	Water heater .....	W. C. Gurney
Latch, Door .....	F. N. Handler	Stave jointer .....	J. J. Krohn	Water-heating apparatus .....	W. Hawks
Lathe attachment, Turnig .....	G. R. Bennett	Steam generator .....	L. Steinmuller	Weather strip .....	T. Lee
Leather or like stretching apparatus .....	I. H. Ellsworth	Steel, Manufacture of (Reissue) .....	W. R. Walker	Weather strip, Antithreshold automatic .....	P. M. Wickstrum
Leather treating machine .....	G. V. Anderson	Stirrup, Safety .....	L. E. Lauritsen	Wood cutter .....	A. Taylor
Lemon-juice extractor and egg separator, Combined .....	H. C. Payne	Stitch forming mechanism, Multiple needle .....	R. R. Hughes, Jr.	Wood-exterminating device .....	L. H. Archard
Life-saving apparatus .....	W. Friman	Stitch indenting machine .....	E. F. Mower	Wheel press .....	H. A. Jensenius
Life saving apparatus .....	A. Greeu	Stitching machines, Guard and stop for wire .....	W. R. Good	Whip-socket lock .....	J. M. Conway
Lifting jack .....	I. E. Hindman	Stove, Camp .....	E. W. Ehmann	Window .....	R. Henderson
Lifting jack .....	W. Pavlik	Stove implement, Combined .....	S. E. Avery	Window cleaner .....	C. G. Talbot et al.
Lighting plant register, Carbid .....	W. A. Reineke	Strainer for suction pumps .....	H. L. Darwood	Window cleaner .....	A. J. Adams
Liquid receptacle, Electrically-heated .....	E. Schwartz	Street sweeping and loading device .....	W. C. Pascoe	Window-cleaning device .....	C. L. Robinson
Loading machine .....	G. Hanslick	Sugar liquors, Treating .....	F. Ilavati	Window screen .....	A. Talbot
Lock key, Automatic safety .....	A. Giacometti	Suspenders .....	F. V. Wade	Window ventilator .....	G. A. Fair
Locomotive .....	D. T. Fisher	Suspending device .....	F. R. Batchelder	Wire connector, Ground .....	F. E. McKenna
Loom for weaving horsehair fabrics .....	C. R. Grosslaub	Switch .....	M. Guett	Wire straightener .....	A. H. Neller
Loom, Haircloth .....	K. H. Stobbe	Switch target .....	E. R. Trammell	Wire stretcher .....	A. B. Dowell
Loom shuttle and spindle .....	G. M. Cheney	Swivel implement handle .....	J. N. Michels et al.	Wire stretching and reeling machine .....	R. Richardson
Lubricator .....	J. F. Cooley	Syringe holder .....	G. Giordano	Woven fabric .....	V. H. Jennings
Lumber, Treating .....	L.				



- Bolt ..... L. Holler  
Bolt and grease cup from sheet-metal  
blanks, Making a combined, G. W. Bowen  
Boot-upper-shaping machine ..... P. Beier  
Boot uppers, Shaping ..... P. Beier  
Boots, shoes, and like articles, Nailing  
machine for ..... A. Fricke  
Bottle, Non-refillable ..... O. Gessler  
Bottle, Non-refillable ..... J. D. Mulvehill  
Bottle, Non-refillable ..... S. Fiselila  
Bottle, Non-refillable, A. W. Butterfield et al.  
Bottle, Poison-indicating, J. G. Grantham  
Bottle-rinsing apparatus, A. A. Pindstoffe  
Box ..... M. R. Woodward et al.  
Box machine ..... M. R. Woodward et al.  
Braid holder and bodkin carrier, Com-  
bined ..... E. M. Goldsmith  
Brake shoe ..... C. V. Marquart  
Bread machine, Shingle ..... L. Erensdal  
Bridge gate, Draw ..... A. Lichtfuss  
Brush, Shaving ..... F. J. Munro  
Brush, Toilet ..... J. H. Schenker  
Buckle (2 pats.) ..... L. W. Wright  
Buckle ..... J. F. Molloy  
Building block ..... W. E. Pease  
Building block and making same, Hollow .....  
F. Burchartz  
Bulb ..... V. Guleserian  
Bundling machine ..... W. W. Dear  
Burling protector ..... Q. E. Packard  
Burglar alarm ..... J. E. Liljeblad  
Burner attachment ..... F. De Felice  
Cabinet for desk implements .....  
G. De la Torre  
Cabinet, Ironing ..... F. E. Beagle  
Cable carrier apparatus ..... L. W. Chism  
Cable hanger ..... A. L. Cooper  
Candle holder ..... A. N. Markert  
Cap ..... A. Knowles  
Car and frame ..... H. M. Pfleger  
Car bunk and stake, Logging, C. T. Eaid  
Car-door-operating mechanism .....  
G. C. Chorbouinier  
Car-heating system, Electric-railway .....  
F. Hedley et al.  
Car-platform-bulding mechanism .....  
C. T. Westlake et al.  
Car-seat pedestal ..... R. B. Liddell  
Car, Stock ..... W. H. Canup  
Car, Street ..... D. A. L. McDonald  
Cars and the like, Temperature-regulating  
means for ..... W. Barstow  
Cars, Ballast-spreading attachment for .....  
C. F. Pitts  
Cars, Electric-heating system for .....  
F. Hedley et al.  
Carbon holder ..... O. S. Gauch  
Carbonating apparatus, Liquid, H. G. Smart  
Carburetor ..... W. H. C. Higgins, Jr.  
Carburetor ..... E. A. Rumely  
Carrier ..... M. E. Schmidt et al.  
Cartridge, Fuse ..... F. J. Farrari  
Cash register ..... T. Carroll  
Cask-filling device ..... G. Engelhard  
Casting machine, Die ..... L. M. Parkhurst  
Cattle guard for roadways .....  
J. A. Stephenson et al.  
Chain post ..... L. A. Cornelius  
Chain wrench ..... E. H. Dickson  
Charring and finishing plane articles, Ma-  
chine for ..... A. W. Groves  
Chest expansion and lung capacity, De-  
vice for indicating and announcing .....  
A. R. Gibson  
Chimney-sweeping apparatus .....  
O. and O. Latzsch  
Chisel gauge ..... A. J. Howell  
Churn, Aerating ..... W. S. H. Wailes  
Cigar-head protector ..... G. S. Mahn  
Cigarette case ..... A. Mitchell  
Circuit breaker ..... L. E. Hodges  
Clasp or buckle ..... G. B. Adams  
Cloth-laying machine ..... J. E. Jufe  
Clothes line ..... R. L. McMinn  
Clothes line ..... D. J. Lahay  
Clothes-pin holder ..... L. F. W. Mertens  
Clutch, Friction ..... F. J. Lemley  
Clutch mechanism ..... W. A. Barker  
Clutches, Means for controlling and reg-  
ulating the operation of, C. W. Parker  
Coal and rock-drilling machine, Manual .....  
T. D. T. S. B. and W. Lepietti  
Cock, Gas ..... T. J. Little, Jr.  
Cocoa roaster, Pulverized, P. G. Hollstein  
Coin-changing machine ..... A. K. Collins  
Coin-controlled lock ..... J. A. Horne  
Coke-oven heat, Apparatus for utilizing  
(2 pats.) ..... E. C. Morgan  
Coloring matter, Blue-green vat, H. Wolff  
Combination lock ..... J. H. Hobson  
Combining device, Chenille-weft for pile .....  
W. T. Smith  
Compression wrench ..... W. H. Lutz  
Compressor ..... J. Stumpf  
Concrete-block machine ..... F. W. Myrick  
Concrete conduit ..... J. C. Mitchell et al.  
Concrete construction ..... J. Gilligan  
Concrete reinforcements, Support for .....  
C. A. Koerner  
Concrete spreader ..... J. E. Briggs  
Concrete tie and steel plate, O. J. Myers  
Concrete walls, Apparatus for producing  
monolithic ..... T. J. Shipman  
Conduit or drain pipe ..... G. T. Carpenter  
Container porous head ..... W. C. Urbanek  
Cooking utensil ..... A. F. Cherney  
Cooling and ventilating apparatus, Com-  
bined ..... C. H. Coolidge  
Core-making, Binder for ..... D. J. Ogilvy  
Cork-making machines, Feeding attach-  
ment for crown ..... A. Bogdanffy  
Corn header and loader, Katir .....  
M. S. and J. A. Brown  
Corn-heading device ..... A. R. Johnson  
Cotton chopper ..... J. W. Noble  
Cotton chopper, Cultivating, C. T. Starkey  
Cotton picker ..... H. E. Foucher  
Cotton-stalk cutter ..... J. Thomsen  
Cover for culinary vessels, M. Pearl et al.  
Crab trap, Knockdown ..... B. Svoboda  
Crutch tip ..... W. B. Wileox  
Culinary vessel ..... M. Pearl  
Cultivator, Two-row ..... I. A. Weaver  
Cultivator, Wheeled ..... A. C. Lindgren  
Culvert ..... G. A. Belknap  
Curtain pole ..... J. Slowik  
Curtain stretcher ..... A. B. Willi  
Cuspidor ..... M. L. Dalpez  
Cutlery, Table ..... G. E. Smith  
Cutter-head-jointing attachment .....  
H. A. Perkins  
Cutting mechanism ..... J. Klingele  
Dehydrating apparatus, G. D. Harris et al.  
Dental impression tray ..... M. O. Thein  
Derrick ..... O. W. Callahan  
Desk ..... J. Booth  
Die-throwing device ..... A. M. Langworthy  
Die stocks, Reamer attachment for .....  
F. Saville  
Disappearing table or shelf, W. W. Miller  
Dispensing bin ..... W. G. Templeton  
Dispensing device ..... J. I. Megirian  
Display and storage cabinet, A. M. Anderson  
Display rack ..... A. E. Miller  
Distilling turpentine from crude pine  
gums of various ages ..... R. Dunwoody  
Door check ..... J. E. Gibbs  
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Doubletree ..... A. J. Gray  
Doubletree mounting ..... G. R. Christ  
Drafting tool (Reissue) ..... C. H. Robins  
Drying machine ..... H. Lofquist  
Drying machine ..... L. J. Black  
Drill extractor ..... W. L. Hatzel et al.  
Drill eye, Spring ..... H. Haugnes  
Drill pipe with lock joint ..... A. C. Zierath  
Driving and braking mechanism .....  
F. C. Atherton  
Dust pan ..... A. R. Gibson  
Dye, Yellow vat ..... D. Nissen et al.  
Eaves-trough hanger ..... H. B. Todd  
Eccentric, Detachable ..... J. L. Vale  
Educational apparatus ..... H. Alliot  
Egg beater ..... L. Schneider  
Electric apparatus controlling means .....  
E. H. and K. A. Widgren  
Electric cable ..... F. R. McGearty  
Electric generating apparatus, Portable .....  
V. Senec  
Electric ground detector, G. A. Burnham  
Electric switch ..... E. R. Hamilton  
Electric switch, High-potential .....  
C. C. Badeau  
Electric switch, Remote-control, J. R. Gunn  
Electric-wire conduit ..... F. C. Hodgkinson  
Electric-wire-supporting device, H. A. Hicks  
Electric-wire test connector ..... A. Kneisel  
Electrical arcs, Method and apparatus for  
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Electrical connector (2 pats.) ..... R. H. Welles  
Electrode for producing arcs (2 pats.) .....  
G. Wagener  
Electromagnetic motor ..... G. M. Mayer  
Elevator ..... A. Brimelle  
Elevator safety device, B. and C. E. Baumer  
Elevator safety indicator and control .....  
P. T. Kenny  
Ellipsograph ..... W. S. Elliott  
Engine control ..... H. J. Parchman  
Engines, Current-generator and igniter  
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Engraving, Rocking gear for mill, C. A. Ker  
Evaporator ..... O. Mantius  
Explosive ..... R. Imperiali  
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Extension support ..... J. E. and J. E. Woodbury  
Fabric drier ..... W. M. Schwartz  
Fan or blower, Rotary ..... F. R. Still  
Fan, Propeller ..... S. T. Foranader  
Fastening ..... K. D. Stevenson  
Fastening device ..... J. Carlson  
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J. W. Scott  
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Festooning, edging, and embroidering ma-  
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Filing appliance ..... H. J. Hick  
Filter ..... H. F. Maranville  
Fire escape ..... J. F. A. Klettke  
Fire-resisting shutter and slat therefor .....  
E. H. McClelland  
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Fluid indicator ..... J. B. Meriam  
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Fruits, vegetables, seeds, &c., Apparatus  
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Furnace ..... J. Weintz  
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Fuse ..... A. W. Schramm  
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Gas, Apparatus for separating water from .....  
H. McConnell  
Gas-lighting apparatus, Automatic .....  
P. R. Seamon  
Gasket ..... C. S. Parker  
Gasoline engine ..... D. H. Muir  
Gear-generating machine ..... K. Hoepfner  
Gearing ..... T. A. Maxwell  
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Glove, Pneumatically-padded boxing .....  
A. Dunn  
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gines ..... W. R. Philippi  
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J. A. Scott  
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Grinding rolls for treating wheat and  
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Hat pins, Protective device or button for .....  
P. T. Merrill  
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Heating and ventilating system, D. D. Harr  
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Hinge, Gate ..... H. P. McFarland  
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Horseshoe calks, Machine for forming .....  
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G. R. Proctor  
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L. M. Hiekey  
Lamp bracket ..... W. F. Ankham  
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Lamp, Mercury and other vapor electric, ..  
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V. Winquist  
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W. E. Pugsley  
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 Scale poise and beam ..... A. W. Epright  
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 Seeder ..... O. H. Reich  
 Separator lubricator, Centrifugal-liquid ..... J. V. M. Risberg  
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 Shock absorber ..... E. A. Green  
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 Band press for drying vegetable and mineral substances ..... H. Brune et al.  
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(Continued in June Number)

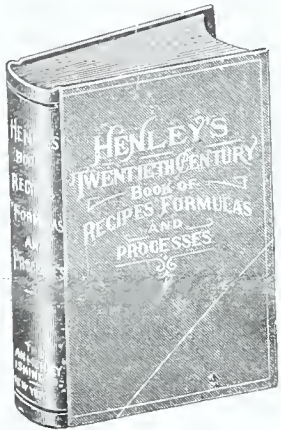


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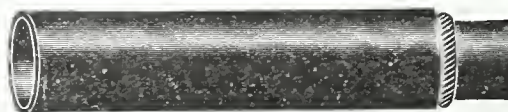
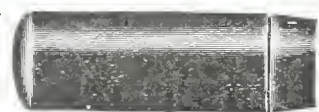
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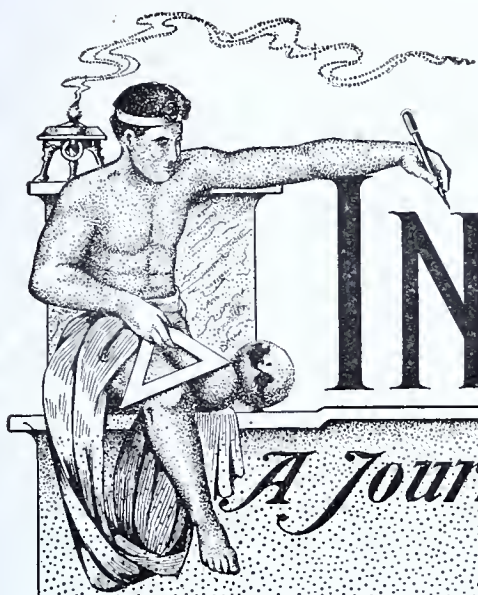
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## MOVING PICTURES ON GLASS PLATES.

By FRANK C. PERKINS.

A NEW moving picture camera and projector using photographic glass plates may be noted in the accompanying illustrations. It was designed by an Italian inventor, M. Gianni Bettini. The last objection to the moving picture machine in the schools (the danger of fire, owing to the inflammable nature of the celluloid film) has

use films are employed in public representations and the price of the apparatus is very high. The films are also expensive and their use is attended with a certain amount of difficulty, involving an element of danger, while the general manipulation of the whole is a delicate matter.

The new device is cheap. It is no

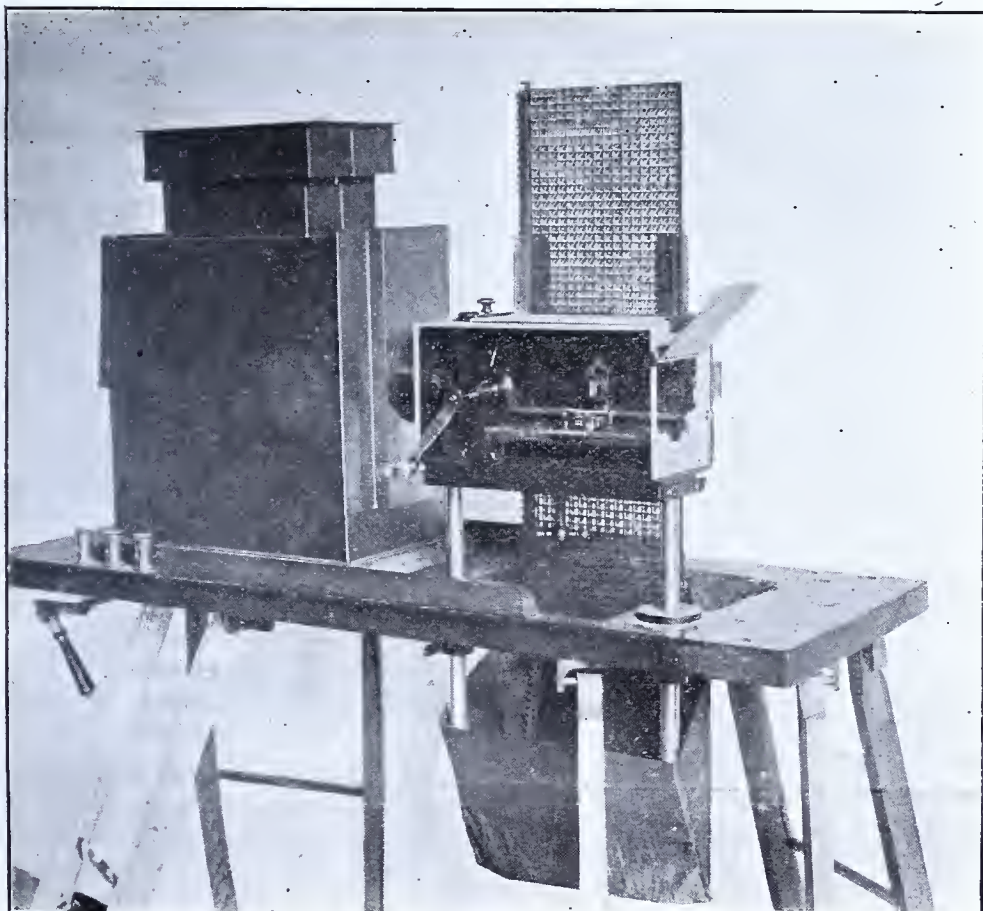


FIG. 1.—VIEW OF MACHINE AND PLATE IN POSITION.

been removed by this new invention, it is said, and a new era is dawning for cinematography.

The writer is indebted to the inventor for the illustrations and description of this novel apparatus for taking animated pictures with the aid of sensitive plates, such as are used in ordinary photography.

The moving picture machines which

more cumbersome than an ordinary kodak, its mechanism is reduced to the simplest form, while its manipulation is easy. One apparatus takes the pictures and projects them without the aid of any other accessory but a lantern. The pictures are registered upon plates, each plate holding 576 photographs and allowing one minute of projection. A special mechanism

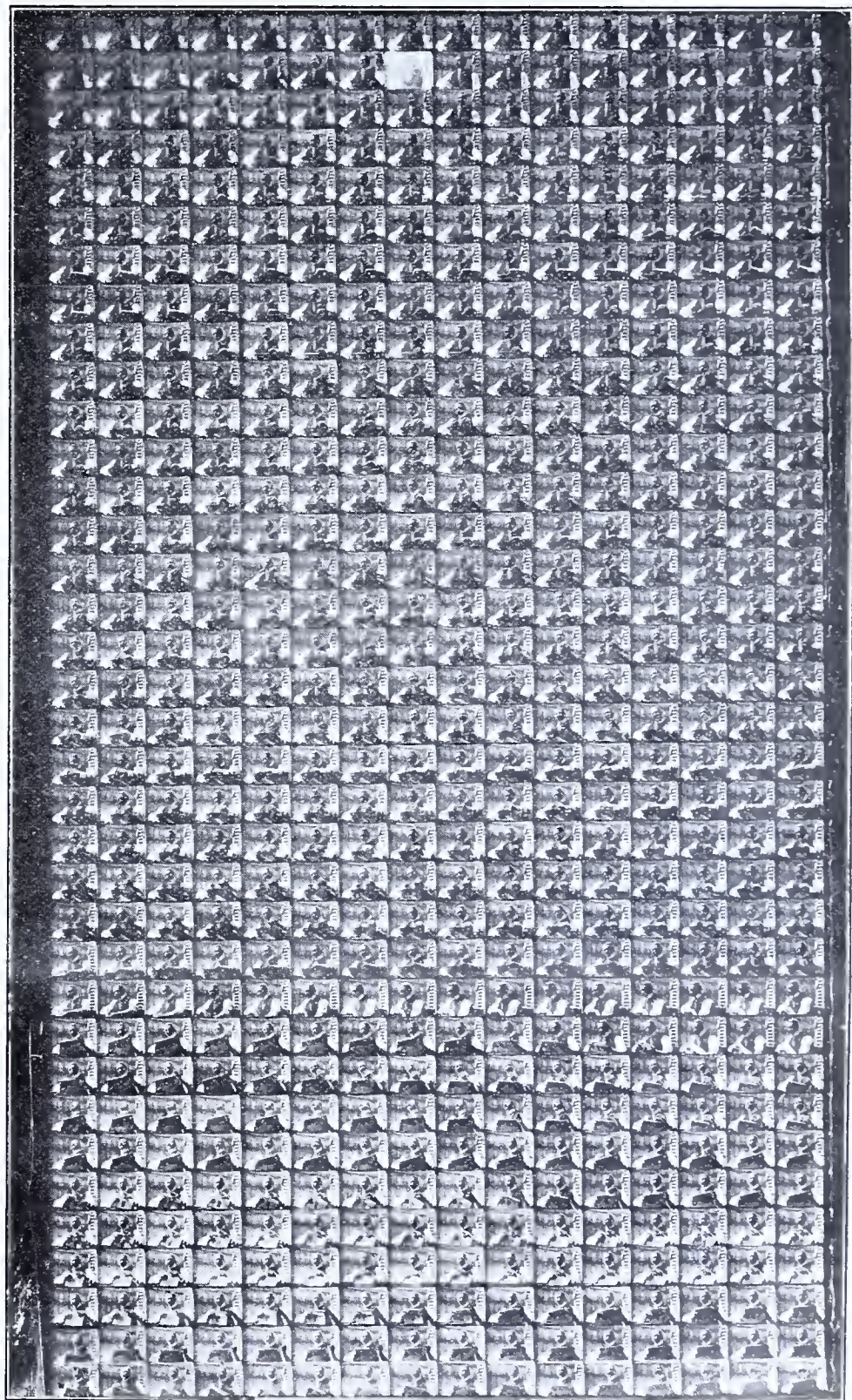


FIG. 2.—GLASS PLATE IN NEW MOTION PICTURE MACHINE.



allows the plates to succeed one another in a lighted room without interruption and the operator can therefore continue for hours.

This Italian invention is no doubt destined to become popular, and will be before long the companion of the tourists, the faithful collaborator of the lecturer and of the teacher, the aid of the entertainer, and as common as the stereopticon. The mechanism is interesting. Plate kinematographs up to the present have been based upon the principle of the ribbon or tape apparatus: i. e., upon the abrupt displacement of the photograph before a fixed object. This is an inconvenience, as the rapid displacement of the plates, with the parts attached thereto, followed by abrupt stoppages which cause longitudinal and transverse vibration, constitute a hindrance to securing good results, and the apparatus requires so large a space and such complicated mechanism as to be impracticable for many purposes. In the Bettini invention it is only the optical device, which weighs very little, which is displaced, the plates remaining fixed, and by this means all the inconveniences mentioned are avoided, although the problem presented appears

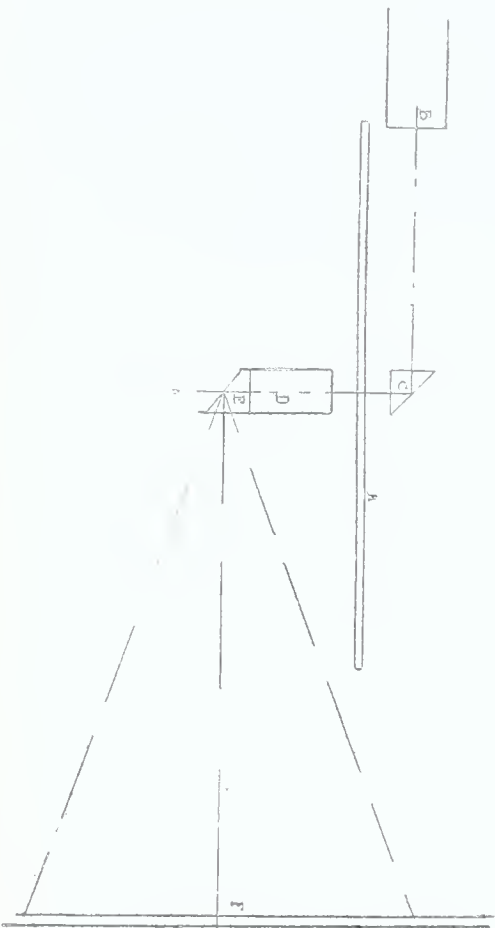


FIG. 3.—METHOD OF OPERATION.

at first sight scarcely solvable. It seems to constitute in itself a paradox. In case the objective is displaced, the projection must also be continually displaced in order to follow the objective in its course. All this has been foreseen by M. Bettini, who has provided the solution in an apparatus in which the objective alone is displaced without causing any displacement in the projection.

It will be noted in Fig. 3 that the lantern and the plates bearing the photographs are maintained in position. The photographs are illuminated with a source of fixed light (B), forming a luminous pencil parallel to the plan of the plate or tape (A) bearing the picture, instead of falling perpendicularly upon this as in all other projectors. It will be noted that the

axis of the luminous pencil is deviated by a prism from its original direction. It is projected perpendicularly upon the plate, which it traverses, then upon a reflecting surface (E) and finally upon the screen. Through an objective (D) combined with another prism or another reflecting surface (E), and disposed on the other side of the plate or tape, the image is directly projected upon a screen (F) placed perpendicularly to the plan of the plate or tape.

In displacing the objective and the prism (DE), as well as the reflector prism (C) by a brusque synchronic see-saw movement parallel to the plate or tape (A), the position is not changed and the photographs of the same range will be successfully illuminated and projected.

In taking the pictures, the portions of each plate, as shown in the photographs, are consecutively exposed by the turning of a crank, which also operates the shutter, causing it to open and close at the proper intervals and with the proper speed. Exposure begins at the upper left hand corner of the plate and continues toward the right in the top row until, as shown in illustration, the ninth picture is taken. Then the plate automatically moves upward the necessary space. When the plate is filled with pictures it automatically moves aside and a new one is substituted without interruption.

During the displacement of the objective and prism the field of the pictures taken undergoes a slight diminution or augmentation in size, which is inappreciable to the eye. It is held that this augmentation or diminution being gradual and minute, is blended in the same way as photographic subjects according as they approach or recede from the apparatus. On the other hand, in projection, this augmentation is made in an inverse sense to the taking of the pictures, for the smallest picture (that which will be nearest to the screen) will become the least. As a consequence, the augmentation in size at the projection end being in an inverse sense to the taking of the pictures, the projection will be vigorously fixed, even if the difference in size of the pictures is marked.

The whole of the mechanism is contained in a box which is neat and light. There is no doubt that the device represents an advance in the domain of the moving picture machine.

#### Motor Chapel.

The latest device in motor vehicles is a church, now being built for missionary work in the southwest. It has been constructed on a standard 2-ton chassis at a cost of about \$8,500, and it will contain an altar and other paraphernalia for carrying out the ritual in regular form. The sides of the machine open by means of folding doors, which cover the rear and rear half of the sides, and are adjusted to form the sanctuary walls. This, with a drop platform, gives approximately double the normal floor space to the car when services are being held. A folding organ is included in the equipment, and the car also provides sleeping accommodations for two persons.

## BOOK REVIEWS.

### THE MODERN GASOLINE AUTOMOBILE

#### Its Construction, Operation, Maintenance and Repair.

By VICTOR W. PAGE.

The Norman W. Henley Publishing Co. N. Y.

This is the most complete treatise on the gasoline automobile ever issued. The gasoline car is now used almost universally. Over 500,000 motor vehicles are used in the United States, and the yearly output of domestic producers is estimated at 190,000. The enormous demand for this practical conveyance has resulted in a wide increase in the number of those interested in motors, and the gasoline automobiles far outnumber those using other forms of power. The present book gives not only an exposition of principles of construction of all types of machines, but valuable hints on the care and operation of motor cars propelled by internal combustion engines. It is written in simple language by a recognized authority, formerly technical editor of the *Automobile Journal*, and familiar with every branch of the industry. Among the subjects treated are the following: Torpedo and other symmetrical body forms designed to reduce air resistance; sleeve valve, rotary valve and other types of silent motors; increasing tendency to favor worm gear power-transmission; universal application of magneto ignition; development of electric lighting systems; application of self-starters; latest lubrications, and many other details.

#### The Gasoline Engine on the Farm.

By XENO W. PUTMAN.

The Norman W. Henley Publishing Co. N. Y.

All profitable farms use power. This book tells how to utilize gasoline in various applications on the farm. The gasoline engine was, until recently, only a theory: it is now a completed fact and is doing the world's work everywhere. Its mission on the farm is one that has heretofore never been filled. With the coming of a prime mover that can really be utilized under the peculiar conditions surrounding the farmer's work, there comes a demand for men trained for the opportunity, capable of making the most out of that which was yesterday a dream and is today an achievement. This volume is intended for the workmen of the farm, to assist them in meeting a new situation. It describes how to select the most suitable engine, its most convenient and efficient installation, with chapters on troubles, their remedies and how to avoid them. The care and management of the farm tractor in plowing, harrowing, harvesting and road grading are fully covered. Contrivances for cutting wood, supplying the house and barn with water, loading hay, delivering grain to the bins, as well as for churning, cleaning, etc., are described. It is the kind of a book every farmer will appreciate and that every farm home ought to have.

#### Gasoline Engines, Their Operation, Use & Care.

By A. HYATT VERRILL.

The Norman W. Henley Publishing Co., N. Y.

The discovery of the gas engine marked a new era in mechanical pro-

gress and its perfection has led to some of the most important of modern inventions. Through its service aeroplanes and submarines have become possible, and the use of motor vehicles of all kinds has been enormously extended. Even more valuable are the services of the gas motor in stationary form. In view of the manifold uses of the engine and the number in daily service, it is surprising that so few operators and owners thoroughly understand their engines. Many a man who would not trust himself to operate a steam engine will undertake to handle a large and complicated gas motor; and yet the latter is the more delicate piece of mechanism. It speaks well for the gas engine that there is so little trouble, in spite of the ignorant handling to which it is subjected. Many books have been written on the gas engine, but they are mostly too technical for the use of the laity. In this little volume, the author has endeavored to present a practical guide to all who have occasion to use gasoline engines. It is particularly intended for people with little knowledge of mechanics or engineering. The illustrations assist in making clear points that could not otherwise be well brought out. The writer hopes that the work will prove as useful to his readers as a similar work would have been to him, in the early years of his gasoline-motor experiences.

### GASOLINE TROUBLE CHART.

#### The Location of Engine Troubles Made Easy.

By VICTOR W. PAGE.

The Norman W. Henley Publishing Co. N. Y.

Relatively few of the owners of gasoline engines understand how to take care of them. If the machine stops running, or some trouble develops, the average operator begins to experiment by loosening a nut or screw here or tightening there, and otherwise fumbling over the machine without improving its action. Something new in the way of aid in such cases has just been published, in the form of a trouble chart. It gives an illustration of a typical four-cylinder gasoline engine of the four-cycle type, with a list of all the troubles that are likely to occur, and describes clearly the part affected, the nature of the trouble, the symptoms and effects, and above all, how to remedy the difficulty. It will be found valuable to all motorists, especially to beginners, but of use even to experts, as a handy reference chart. It should be on the walls of all public and private garages, and should be carried in the pockets of all automobiles, as it will save much time and trouble.

#### How to Get Copies of Patents.

THE INVENTIVE AGE prints each month a list of the patents granted by the Patent Office. This list includes the name of the inventor, the title of the invention and the date of the patent. Anyone can procure through THE INVENTIVE AGE a copy of any patent included in the list, by giving the data and enclosing ten cents in stamps for each copy. There is no better way of keeping yourself informed about the progress of the arts than by scanning the list each month and ordering copies of patents.



## THE PROFESSION OF PATENT LAW.

(Reprinted from The Wisconsin Engineer.)

The profession of Patent Law is doubtless so far removed from the pursuits of most alumni of the Engineering College, that the editor must have regarded the subject matter of this article as being primarily of interest to the undergraduate, who is more or less free to choose his future field of endeavor. A patent lawyer likes to discuss with enthusiasm the magnitude and importance of industries based upon patents. The undergraduate would doubtless, however, be more interested in learning something about the routine work of a patent attorney, about the qualifications necessary to success in that field and about the pecuniary rewards to be expected.

The neophyte will devote his attention to the matter of soliciting patents. If in this he is successful and he becomes admitted to the bar, he will devote his attention largely to the conducting of patent litigation. A patent lawyer who is successful in these branches will inevitably be called upon to handle important contracts and negotiations.

In order to procure a patent, the inventor is required to file in the Patent Office a drawing illustrating his invention, a specification describing its construction and mode of operation, and a set of patent claims, each claim defining in exact but comprehensive language the feature "covered" by the patent. In order to be effective, the claim must be broad enough in its descriptive terms to include all feasible variations of the invention. On the other hand, the claim will be invalid if so broad in its descriptive terms as to describe anything that may have preceded the invention to be patented.

In order to be a successful solicitor of patents, therefore, a man must have a quick and active imagination; otherwise he will fail to foresee the variations which may be made in carrying out an inventive idea. If the solicitor fails to foresee the possible variations, he is not likely to draw claims of a scope broad enough to cover effectively his client's invention. For example, it was essential that the solicitor of the Bell telephone patent claims should recognize that Bell's fundamental idea lay in varying the strength of an electric current in conformity with the sound vibrations to be transmitted. The particular form of the apparatus for bringing about this result was comparatively unimportant, as demonstrated by the thousands of detail patents subsequently taken out upon every conceivable form of telephone transmitter, receiver, switchboard, etc.

One would suppose that inventors themselves would be able to point out to their patent solicitors the essential features of their inventions, and to distinguish these essential features from

the unimportant details. Some inventors have that faculty of analysis, but a complete lack of it is more nearly the rule. It devolves upon the patent solicitor, therefore, to see into and through the inventions submitted for his consideration and to pin his claims to the essentials.

For the most part, the more important modern inventions involve the application of highly scientific principles and theories, and, other things being equal, the patent solicitor who is best informed upon scientific principles upon which engineering practice is based, will best succeed in drawing specifications and claims adequate to cover his client's invention. Years ago patents were solicited by general lawyers who were occasionally called upon to strive as best they could with an occasional invention. Nowadays, however, it is the exception rather than the rule to find in the patent practice, young men who have not had the advantage of an engineering education.

A large majority of the young men who enter the profession of the patent law do so through the avenue afforded by the Patent Office itself. The government conducts civil service examinations, as a result of which the Patent Office Examiners are appointed. It is the business of the examining corps of the Patent Office to consider the claims filed by patent solicitors and to compare those claims with the devices of the so-called, "prior art." If the examiner finds that the claims are so broad as to describe something that antedates the invention in question, he rejects the claims with a statement of the reasons for his rejection. The work of the Patent Office Examiner familiarizes him with the jargon of patent specifications and claims and it gives him a thoroughgoing familiarity with the particular art or arts to which he may be assigned. The Patent Examiner's compensation at the outset will be \$1,500 per year, and he may reasonably look forward to an increase of about \$100 a year.

There are several good law schools in Washington, and the class hours are arranged in such manner that the Patent Office employes may attend. It is the custom for ambitious assistant examiners, therefore, to take the law course while in the government employ. Admission to the bar of the District of Columbia will admit to practice in nearly all of the states. To my mind the opportunity to attend a good law school is the most important advantage offered through a position on the examining corps of the Patent Office. If an engineering graduate had an opportunity to study law and to become admitted to the bar without entering the Patent Office, I should advise him to do so, particularly if he could meanwhile spend part of his

time in the office of an active firm of patent attorneys. I know that many patent attorneys would not second this advice, but in my opinion the experience gained in a law office, particularly in the matter of meeting and dealing with clients, will more than offset the value of the Patent Office training. The bulk of the patent work is handled in large cities, and most of the large cities are provided with law schools available to the man who starts in as a draftsman or specification writer in a patent law office.

A man's success as a solicitor of patents will depend not only upon his fund of information upon scientific and engineering subjects, but upon his powers of analysis. An ability to write fluent and intelligible English is an almost necessary requisite, and finally his ability to draw any considerable income will depend largely upon his ability to attract and hold clients. The ability and habit of doing first class work are, of course, the most potent means of establishing a clientele, but the ability to "meet people," and to inspire confidence in them is an asset of no small value.

No man who gets into the patent practice will be satisfied to devote himself always to the work of soliciting patents. He will wish to identify himself with the trial of patent suits involving questions of patent infringement. There may have been an old-fashioned idea that the most successful lawyer was the most gushing fountain of perverted oratory. This idea is so far removed from the fact that I doubt if it exists nowadays even among laymen. Certainly, lawyers themselves know that the man who is most diligent in his search for evidence and in the production of that evidence is almost bound to win against the lawyer who depends upon his oratorical flight alone. As a matter of fact, patent cases are almost invariably tried and decided by judges,—seldom by juries. Judges listen to arguments day in and day out, and they are prone to fall asleep long before the modern Patrick Henry reaches his peroration. The most persuasive patent advocate is the one who can merely *talk* to the judge about machinery in such a way that the judge can understand what he is talking about. The engineer who aspires to success in the profession of patent law will find it unnecessary, therefore, to take long courses in elocution and dramatics.

Any man who is reasonably well qualified, will find the practice of patent law an extremely interesting if not indeed an engrossing pursuit. If he succeeds in establishing a good clientele, he will find that he is working with the men who are not only abreast, but ahead of the times in their respective lines. The patent attorney is occupied necessarily with *new* things. He is procuring patents upon inventions—ideas which have never been conceived of in the past history of the world. The fact that it is only new things which are the subject matter of patents and patent suits, makes it impossible for the patent attorney to devote himself to routine work in the

sense that he must do the same thing over and over again. His work which he performs is almost always new and different from that which he may have done before. There is a fascination in this changing variety of work which appeals. It is a source of satisfaction to be right in the face of a progressive age, and a source of satisfaction to have procured a patent which a rival will find it impossible to circumvent. It is a satisfaction to be right in maintaining an inventor's rightful monopoly in the face of the would-be infringements of competitors. I know of no experienced patent attorney who does not profoundly and enthusiastically the charm with which his profession holds him.

It would, of course, be futile for any man to select his business or profession with reference only to the pecuniary returns to be expected. It will, however, be of interest to the engineering undergraduate who contemplates the patent law as a possible vocation to know something about the income to which he may look forward. In a general way, the patent attorney's income is likely to be less during the early years of his career than in other and more common branches of engineering. On the other hand, the income of the average patent attorney is probably somewhat higher in the later years of his life than that of the average engineering work.

A graduate engineer with no experience whatever in patent work will find it difficult to get a position of any kind with a patent law firm. He must make up his mind to regard the getting of a position of any kind as of primary importance, the matter of salary being wholly secondary. It not infrequently happens in the east that young men will pay their employers for an opportunity to work in their law offices. In the middle west, it is customary to pay something even to a beginner. I am willing to cite my own case, in which the aspirant for legal training and experience was paid seven dollars per week at the beginning of his career in a patent law office. A thoroughly ambitious man might hope to increase his income at the rate of about a thousand dollars per year during the first few years of his career. First-class patent attorneys in the middle west generally receive fifty dollars per day for their time. His clerical and office expenses will eat up about one third of his charges to clients. To a certain extent, a patent attorney can increase his income above the limits thus set, by employing assistants, but it is impossible to extend a purely professional business indefinitely. Clients generally want the head of the business to be in close touch with their own affairs and there is a limit to the amount of detail which any man can follow thus closely.

Patent attorneys become closely identified with new enterprises and find themselves in a good position to judge the merits of new enterprises. This gives them an opportunity to make speculative investments which may prove highly profitable.

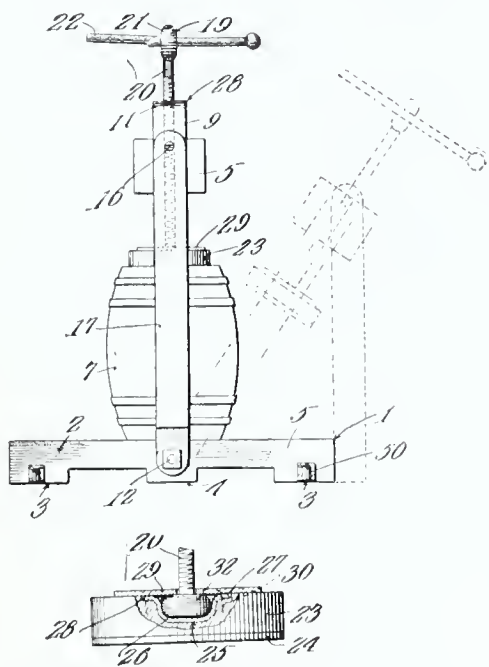


## CLEVER NEW PATENTS.

Packing Press and Barrel Header.---Boxing Glove.---Hasp Lock ---Milking Pail.

### Packing Press and Barrel Header.

A device for compressing vegetables into barrels and heading up the latter has been recently patented by Andrew Sanford Hanger, of Fishersville, Va. It will be seen from the drawings that the platform has a projection which fits in the barrel closely so as to reinforce the lower head thereof. Through the arms 9 of the supporting frame passes a pivot 12 which runs through an opening 14 in the platform.

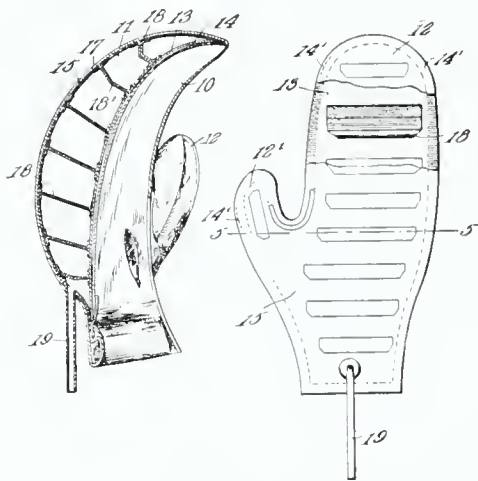


A block 15, mounted between the arms 9, abuts against the middle part of the frame, the arched head 11 thereon being spaced from the block. Securing elements 16 extend through the arms to engage the block, and constitute pivots for the supports 17. The frame may be swung to one side as shown in the drawing, the supports holding it tilted so that the operator may fill the barrel readily and place the upper head thereon when it is filled. A screw 20, through the head of which the turning bar 22 is thrust, is threaded through the arched head 11 and the block 15. The presser foot 23 fits in the upper end of the barrel, the lower face of the foot being equipped with a resilient facing, preferably of felt, and so constructed that the fruit is compressed without injury. A metallic plate in a recess in the foot has a flange which fits flush with the upper face of the presser foot 23. To the upper face of the foot retaining members 29 are secured, and have in their meeting edges slots defining a circular opening in which the screw is journaled. The screw has at its lower end a head held for rotation in the retaining members 29, the plate 26 constituting a thrust bearing for the head 32. In operation the frame is tilted, a barrel is placed on the platform, the projection 6 preventing its lower head bursting out under pressure and the head also serving to aline the barrel 7 vertically with the intermediate foot 4 so that when pressure is applied, this will be communicated to a reinforced part of the platform. The barrel with

the filling is swung into place, the screw is rotated, moving down until the resilient facing on the foot engages the vegetables and thrusts them into the barrel. The head 32 constitutes means whereby the screw is swiveled to the presser foot 23. When the contents have been compressed as desired, the foot may be retracted, and the upper head placed in the barrel.

### Boxing Glove.

The principle of the air cushion to lessen impact has been applied to many lines, and the latest is the boxing glove. A device of this character which will interest athletes has been patented by Daniel J. Kennedy, of Yonkers, N. Y. It can be adapted for any glove, the compartment which would ordinarily be filled with hair being provided instead with a cushion consisting of a rubber casing which follows the pocket in outline, the wall 13 (see drawing) of said casing which is non-elastic connecting with the wall 14 of the pocket and the elastic wall contacting with the outer wall thereof. Transverse strips connect the inner walls of the casing, their edges being gummed thereto, and limit the expansion of the bag. The central strips are wider than the end ones and are so arranged that when the casing is inflated (through a tube) the glove assumes the same form as if hair padding were used. The arrangement of the strips allows the casing to follow the curvature of the wall 14 and ensures an even striking surface. The strips also fold,

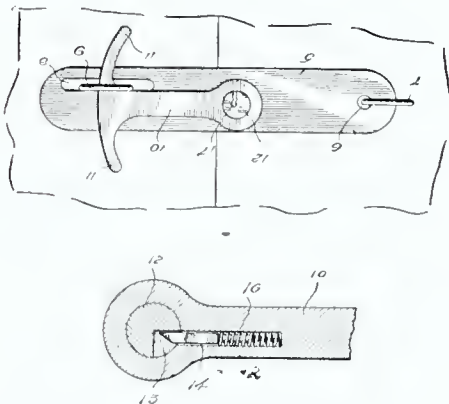


as shown in the cut, when pressure is applied to the glove. It will be seen that a device as described is light and durable, the cushion being evenly distributed over the striking surface of the glove, which can be deflated when desired. Hair padding is apt to become displaced, and has the disadvantage of weight. It should be noted that as the spacing strips are rectangular, the cushion will be of uniform thickness, so that the first and little fingers will be as well protected as the middle ones.

### Hasp Lock.

An ingenious arrangement of a hasp lock, in which the latch is mounted so that when the hasp is engaged with the keeper, the latch is also engaged so that the hasp cannot be removed therefrom, thereby securing the locking of the door, has been invented by James V. Thompson, of Spencer, W. Va. As shown in the accompanying illustration, the hasp has an eye through

which passes a staple, this being fastened to a door, while in the opposite end of the hasp is formed a slot 8 for detachable engagement with a second keeper forming a staple 9, fastened to the frame. Swingingly supported upon the hasp is a hook 10 provided with a double hook end 11 adapted for engagement in the keeper 9, the hook 10 working upon a pivot in a hasp. In the outer edge of the pivot is a notch in which is engaged a lock-

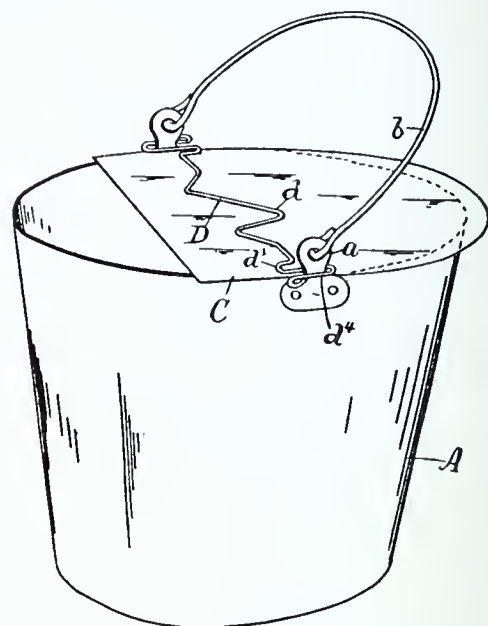


ing bolt 14, the latter being confined within a suitable channel 15 formed in the hook, and being acted upon by means of a coiled expansion spring 16 which is also confined within the channel in the hook, the spring being designed to act on the bolt and force it into the notch in the pivot, and thus the hook is locked. The notch is so located that when one hook is engaged in the keeper the bolt 14 will project into the notch, locking the hook and securely fastening the hasp. A key through the hole 17 unlocks the bolt and allows the hook to be swung to free the hasp.

### Milking Pail.

The necessity of keeping milk clean and free from germs has come to be widely recognized. Investigations of conditions prevailing on the farm and in the dairy have shown that, given proper precautions, the milk is most likely to be contaminated on its passage from the cow to the separator, or in other words, while it is in the milking pail. Horace Sanborn, of Norway, Maine, has invented an attachment that may be applied to any pail, and that is designed to prevent the entrance of dirt. It consists of a metal cover arranged to partially cover the pail,

and a suitable clamp for holding the cover on the pail so as to leave a variable milking opening. As shown in the cut herewith, the cover *c* is roughly in the form of a segment of a circle of slightly larger diameter than the top of the pail, and embracing more than half of the open top thereof. It has a straight edge on one side, and when in position this edge forms one side of the milking opening. The rear or rounded end extends back and overhangs the rear of the pail. A clamp permits the pail to slide forward and rearward to form openings of varying size, to admit the milk. This is regulated according to the desire of the person milking the cow. Beginners usually need a large opening, which is contracted as they learn the work. The clamp consists of a piece of corrugated wire with a loop at each end to embrace the ear *a* and press down on the cover. The body portion



runs to a point about even with the ear and doubles back to *d*<sup>3</sup>, passes out by the ear and then parallel with the same, forming a complete loop. The loop clasps the ear and holds the cover firmly. It is resilient, so as to fit any sized ear. It will be seen that dirt blowing in the air, or falling from the cow, will collect largely on the top of the cover and around the edge of the pail, and so the milk is protected. In pouring out the milk, the cover is pushed forward, leaving an opening in the rear so that the milk does not have to pass over a dirty surface.

# PATENTS

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## LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

### AMERICAN CARAMEL CO. v. GLEN ROCK STAMPING CO.

(District Court, M. D. Pennsylvania. Dec. 30, 1912. 201 F. R. p. 363.)

#### 1. PATENTS—"INFRINGEMENT"—CHANGES IN FORM.

A device which is constructed on the same principle as that of a patent, has the same mode of operation, and accomplishes the same result by the same or equivalent mechanical means, infringes the patent, although it may differ in form.

#### 2. PATENTS—NOVELTY AND UTILITY—ADMISSION BY INFRINGEMENT.

An infringement of an improvement patent is a practical admission of the utility and novelty of the patented improvement.

#### 3. PATENTS—VALIDITY—PRESUMPTION FROM GRANT.

The presumption that the subject-matter of a patent is new, useful, and embodies invention, arising from the grant, is strengthened in an infringement suit, where the prior patents cited by defendant were considered by the Patent Office.

#### 4. PATENTS—VALIDITY AND INFRINGEMENT—CARAMEL HOLDER.

The Lafean patent, No. 945,788, for an improvement in caramel holders, was not anticipated and discloses invention; also held infringed.

### AMERICAN CARMEL CO. v. WILLIAMS et al.

(District Court, M. D. Pennsylvania. Dec. 30, 1912. 201 F. R. p. 366.)

#### PATENTS—VALIDITY AND INFRINGEMENT—CARAMEL HOLDER.

The Lafean patent, No. 945,788, for an improvement in caramel holders, held valid and infringed.

### BORDEN ICE CREAM CO. et al.

#### BORDEN'S CONDENSED MILK CO.

(Circuit Court of Appeals, Seventh Circuit. Nov. 14, 1912. 201 F. R. p. 510.)

#### 1. TRADE-MARKS AND TRADE-NAMES—NAMES SUBJECT OF OWNERSHIP—NAMES OF PERSONS.

A personal name is not subject to exclusive appropriation as a trade mark, even though registered as such.

#### 2. TRADE-MARKS AND TRADE-NAMES—UNFAIR COMPETITION—RIGHT TO EQUITABLE RELIEF.

Relief against unfair competition is granted by a court of equity only on the ground that complainant's business is injured thereby.

#### 3. TRADE-MARKS AND TRADE-NAMES—UNFAIR COMPETITION—USE OF PERSONAL NAMES.

Complainant, Borden's Condensed Milk Company, held not entitled to an injunction to restrain the use by defendant of the name "Borden" in its corporate name of "Borden Ice Cream Company," where complainant had never made or sold commercial ice cream, which was the business for which defendant was incorporated, so that the two companies have never come into competition.

#### 4. TRADE-MARKS AND TRADE-NAMES—"UNFAIR COMPETITION."

The fundamental test of "unfair competition" is not whether the public is likely to be deceived as to who is the maker or seller of goods, but is whether or not the defendant is, in effect, by his conduct, passing off his goods as complainant's goods, or his business as complainant's business.

### SUBMARINE ROCK BREAKING CO. v. SUBMARINE CO. et al.

(Circuit Court of Appeals, Third Circuit. Dec. 2, 1912. 201 F. R. p. 524.)

#### PATENTS—VALIDITY AND INFRINGEMENT—SUBAQUEOUS ROCK BREAKER.

The Rowland reissue patent, No. 12,933 (original No. 907,407), for a subaqueous rock breaker, discloses patentable novelty and invention, and covers a new combination, and a device which was the first, and is to this time the only successful deep-water rock breaker; also held infringed.

### CARDWELL v. E. J. WILKINS CO.

(Circuit Court of Appeals, Second Circuit. Dec. 9, 1912. 201 F. R. p. 525.)

#### PATENTS—VALIDITY AND INFRINGEMENT—WALLET.

The Cardwell patent, No. 940,853, for a wallet designed to carry paper money, is void for lack of invention; also held not infringed, if conceded validity.

### RANSOME CONCRETE CO. v. GERMAN-AMERICAN BUTTON CO.

(Circuit Court of Appeals, Second Circuit. Dec. 9, 1912. 201 F. R. p. 528.)

#### PATENTS—INFRINGEMENT—REINFORCED CONCRETE FLOOR.

The Ransome patent, No. 694,580, for a reinforced concrete floor extending to the face of the building, claims 5 to 10, inclusive, each of which contains other features besides such extension, held not infringed. (Coxe, Circuit Judge, dissenting as to claims 7 and 9.)

### MOORE FILTER CO. v. TONOPAH-BELMONT DEVELOPMENT CO.

(Circuit Court of Appeals, Third Circuit. Nov. 4, 1912. 201 F. R. p. 532.)

#### 1. PATENTS—VALIDITY AND INFRINGEMENT—FILTERING PROCESS FOR TREATMENT OF METAL-BEARING SLIMES.

The Moore patent, No. 764,486, for a filtering process, for recovering the metal contained in metal-bearing slimes, was not anticipated and discloses patentable invention; the process shown being a radical departure from the whole prior art and an original and pioneer step in metal recovery by filtration, to make possible the further application of the cyanide treatment of slimes. Claims 4 and 5 also held infringed.

#### 2. PATENTS—PROCESS PATENT—INFRINGEMENT.

As the apparatus shown in a process patent is only to show that the process may be practically applied, it follows that such illustrative apparatus does not limit the process patentee to that type of machine alone; but the test of infringement of a process patent is whether the apparatus used, no matter what its form, utilizes the process.

### FISHER v. AUTOMOBILE SUPPLY CO., Inc.

(Circuit Court, E. D. New York. Dec. 31, 1912. 201 F. R. p. 543.)

#### 1. PATENTS—DISCLAIMER.

A patentee is not entitled by a disclaimer to obtain a reissue, and thus to avoid the scrutiny of the Patent Office.

#### 2. PATENTS—INVENTION—FLEXIBLE HOLLOW SHAFT.

The Schmidt and Grundmann patent, No. 469,660, for a flexible hollow shaft or tube, claims 1, 3, and 4, as changed by the disclaimer filed September 26, 1912, are void on their face for lack of invention in view of the prior art.

### AMERICAN GRAPHOPHONE CO. v. PICKARD.

(District Court, W. D. New York. Oct. 3, 1912. On Rehearing, December 23, 1912. 201 F. R. p. 546.)

#### 1. COURTS—JURISDICTION OF FEDERAL COURTS—SUITS ARISING UNDER PATENT LAW.

A suit which raises a question of infringement is one arising under the patent law, of which a federal District Court has exclusive jurisdiction under Judicial Code, § 256, subd. 5 (Act March 3, 1911, c. 231, 36 Stat. 1160 [U. S. Comp. St. Supp. 1911, p. 234]), although the construction of a contract is also involved.

#### 2. PATENTS—SUIT FOR INFRINGEMENT—PRELIMINARY INJUNCTION—COMITY.

An assignee for the benefit of creditors has no greater right than his assignor with respect to the sale of patented articles which were purchased by the assignor under a license containing price restrictions, and a federal District Court, in a suit for infringement against the assignee, has power to enjoin a sale by him in violation of such restrictions, even though authorized or directed by a state court.

### FIELD et al. v. CAMP et al.

(Circuit Court of Appeals, Fifth Circuit. Jan. 7, 1913. 201 F. R. p. 682.)

#### 1. CONTRACTS—VALIDITY—CONTRACTS BETWEEN PROSPECTIVE HEIRS FOR DIVISION OF PROPERTY.

An agreement between the children and the heirs at law of a decedent, made during her lifetime, for the division of her property between them after her death, without regard to any will she might make, while not

binding on the mother, may be enforced in equity as between the parties thereto.

#### 2. EQUITY—PLEADING—MULTIFARIOUSNESS.

A bill in a federal court, which was multifarious and tendered no clearly defined issue which was within the jurisdiction of the court, held properly dismissed without prejudice.

### W. W. SLY MFG. CO. v. CENTRAL IRON WORKS.

(Circuit Court of Appeals, Seventh Circuit. Oct. 8, 1912. 201 F. R. p. 683.)

#### 1. PATENTS—SUIT FOR INFRINGEMENT—EQUITY JURISDICTION.

If it appears that there was no right to an injunction at the time of the commencement of a patent suit, and that the patent will expire before there can be a hearing on the merits, the remedy at law is adequate and a court of equity is without jurisdiction; but, if facts existed when the suit was commenced which might sustain an injunction, the question is not then one of jurisdiction, but of discretion in the exercise of jurisdiction.

#### 2. PATENTS—SUIT FOR INFRINGEMENT—EQUITY—JURISDICTION.

That a bill charges conjoint infringement of two patents, and that as to one equity is without jurisdiction because of its expiration within a very short time, does not require the dismissal of the bill as to the other for want of jurisdiction.

### BARRY et al. v. HARPOON CASTOR MF. CO.

(District Court, S. D. New York. Dec. 12, 1912. 201 F. R. p. 686.)

#### PATENTS—INVENTION—FURNITURE TIP.

The Alleyn patent, No. 995,758, for a furniture tip consisting of a flattened spheroid of smooth sheet metal for attachment to the bottom of the legs of chairs or other furniture by means of integral prongs on the rim which are driven into the wood, in view of prior structures in the same and analogous arts, which show round-headed nails and rim-pronged nails and spots used as supporting tips for leather bags, etc., is void for lack of patentable invention.

### UNION SPECIAL MACHINE CO. v. METROPOLITAN SEWING MACHINE CO. et al.

(District Court, S. D. New York. Dec. 12, 1912. 201 F. R. p. 690.)

#### PATENTS—INFRINGEMENT—RUFFLING SEWING MACHINE.

The Woodward patent No. 655,141 for a ruffling sewing machine, consisting generally of a combination of a sewing machine and a ruffling device with means by which the ruffling device may be thrown in and out of operation without stopping or retarding the sewing, and leaving both hands of the operator free to manipulate the work, narrowly construed as an improvement patent, as required by the prior art, held not infringed.

### In re JAYSEE CORSET CO.

(District Court, S. D. New York. Nov. 9, 1912. 201 F. R. p. 779.)

#### 1. TRADE-MARKS AND TRADE-NAMES—CONVEYANCE APART FROM BUSINESS RIGHTS OF ASSIGNEE.

Conveyance of a trade-mark, unaccompanied by any business to which it had been previously attached, conferred no title on the assignee.

#### 2. BANKRUPTCY—GOOD WILL—SALE.

Where the trustee of a bankrupt corporation, owning certain trade-marks and trade names, sold the corporation's goods and chattels without any attempt to sell the good will of the bankrupt's business, such sale operated to destroy both the good will and the trade-marks, so that neither the good will nor the trade-marks could be thereafter a proper subject of sale by the trustee.

#### 3. BANKRUPTCY—GOOD WILL—SALE BY TRUSTEE—WORTHLESS ASSETS—FORBIDDING SALE.

Where a bankrupt's trustee sold the assets of the bankrupt, without the good will and trade-marks, which had been a part of the business, and thereby killed the good will, the bankruptcy court had authority to prevent him from thereafter attempting to make a sale of the trade-marks and good will, on the ground that he was attempting to sell something that was worthless.



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The regular retail price of these tires is \$10.00 per pair, but to introduce we will sell you a sample pair for \$4.80 (cash with order \$4.55).

**NO MORE TROUBLE FROM PUNCTURES**

NAILS, Tacks, or Glass will not let the air out. A hundred thousand pairs sold last year.

**DESCRIPTION:** Made in all sizes. It is lively and easy riding, very durable and lined inside with a special quality of rubber, which never becomes porous and which closes up small punctures without allowing the air to escape. We have hundreds of letters from satisfied customers stating that their tires have only been pumped up once or twice in a whole season. They weigh no more than an ordinary tire, the puncture-resisting qualities being given by several layers of thin, specially prepared fabric on the tread. The regular price of these tires is \$10.00 per pair, but for advertising purposes we are making a special factory price to the rider of only \$4.80 per pair. All orders shipped same day letter is received. We ship C. O. D. on approval. You do not pay a cent until you have examined and found them strictly as represented.

We will allow a cash discount of 5 per cent (thereby making the price \$4.55 per pair) if you send **FULL CASH** WITH ORDER and enclose this advertisement. You run no risk in sending us an order as the tires may be returned at OUR expense if for any reason they are not satisfactory on examination. We are perfectly reliable and money sent to us is as safe as in a bank. If you order a pair of these tires, you will find that they will ride easier, run faster, wear better, last longer and look newer than any tire you have ever used or seen at any price. We know that you will be so well pleased that when you want a bicycle you will give us your order. We want you to send us a trial order at once, hence this remarkable tire offer.

**IF YOU NEED TIRES** don't buy any kind at any price until you send for a pair of Hedgethorn Puncture-Proof tires on approval and trial at the special introductory price quoted above; or write for our big Tire and Sundry Catalogue which describes and quotes all makes and kinds of tires at about half the usual prices.

**DO NOT WAIT** but write us a postal today. **DO NOT THINK OF BUYING** a bicycle or a pair of tires from anyone until you know the new and wonderful offers we are making. It only costs a postal to learn everything. Write it NOW.

## J. L. MEAD CYCLE COMPANY, CHICAGO, ILL.



Notice the thick rubber tread "A" and puncture strips "B" and "D" also rim strip "H" to prevent rim cutting. This tire will outlast any other make--SOFT, ELASTIC and EASY RIDING.



## MECHANICAL INVENTIONS

Patents for which have been procured through the Patent Soliciting Office of E. G. Siggers, Patent Lawyer, Washington, D. C.

Richard P. Rodgers, Spartanburg, S. C. Wire Basket.—The object of this invention is to provide a basket adapted to be advantageously employed for handling cotton and other produce and various kinds of merchandise, and constructed to present both smooth interior and exterior surfaces, and capable of being readily emptied. The basket includes a frame or body composed of upright wires and horizontal connecting wires, a filler connected by the frame or body and forming the walls of the basket, a bottom, and horizontal supporting bars extending across the basket beneath the bottom and having terminals secured to the body.

Oliver W. Robins, Cedar Rapids, Iowa. Ice Edger.—This invention relates to a tool for handling ice and by which large cakes of ice may be readily turned from a position on one side to a position on edge for convenient storing and handling. The device consists of a lever, a hook pivoted to the lever and having its shank extending beyond the pivotal point and provided with a notch, and a fixed stop projecting laterally from the lever and extending into the said notch to form a stop to limit the arc of movement of the hook.

William M. Rush, Greensburg, Pa., inventor; Dallas M. Smith, same place, assignee. Bond Spring for Rail Joints.—The invention of this patent is designed to provide a bond spring adapted to be easily and quickly applied to a rail joint, either when the track is in the course of construction or after the same has been laid, and capable of indicating a broken fish plate by a breakage of the circuit, whereby defective rail joints may be readily detected. The rail bond consists of an approximately U-shaped spring adapted to be driven into the space between the fish plate and the rail, and having opposite contacts for engaging the inner face of the fish plate and the rail to conduct the current from the rail through the fish plate. The sides of the springs are provided with laterally projecting tapered spurs or lugs forming contact points.

David C. Smith, Bee Branch, Ark. Harrow.—This patent covers a harrow capable of ready adjustment to vary its width to suit the conditions or requirements, and adapted to be easily operated to raise either side to clear a stump or other obstruction without interfering with the other side. Another object of the invention is to permit either side of the harrow to drop below the normal horizontal plane of the other side in order to harrow the soil in both places. The harrow comprises a main central beam, longitudinal beams located at opposite sides of and hinged to the central beam and arranged to swing upwardly and downwardly, laterally adjustable side beams pivotally connected with and carried by the hinged longitudinal beams, a standard mounted on the central beam, a transverse lever fulcrumed on the standard and extending from opposite sides thereof and connected with the hinged beams, and operating levers disposed longitudinally of the harrow and connected with and adapted to tilt the transverse lever for raising and lowering the longitudinal and side beams.

Thomas M. Stutsman, Paola, Kans. Dust Cap for Vehicle Hubs.—The object of this invention is to provide a dust cap designed for use on the hubs of the wheels of buggies, carriages and analogous vehicles, and adapted to add to the appearance and finish of the same, and capable of effectually excluding dust and dirt and of preventing the loss of oil or other lubricant. The device includes a split ring tapered in cross section and provided with interior threads and exterior teeth and adapted to be arranged wholly within the outer end of a hub band, and a cap for closing the outer end of the said band, said cap being provided with a tapered threaded portion to engage the threads of the ring and expand the latter to carry the exterior teeth of the ring into engagement with the interior of the hub band.

Robert F. Massey, Trussville, Ala., inventor; Phil S. Mabe, assignee, same place. Car Brake.—The object of this invention is to lessen the number of parts of the brake mechanism by providing a car brake in which one of the floating levers usually employed will be dispensed with, and the central brake rod connected directly to the brake lever at such end of the car, whereby a more direct application of the brakes with the expenditure of less power is effected. The car brake includes brake beams arranged in pairs, brake levers also arranged in pairs and mounted on the brake beams, the members of each pair being connected with each other at their lower ends, and the inner brake lever of one pair being angular and consisting of a laterally inclined lower portion and a centrally arranged upper portion bent into line with the king bolt of the truck, a single floating lever connected at one end with the inner one of the brake levers of the other pair at one side of the central line of the car, operating mechanism connected with the other end of the floating lever, a centrally arranged brake rod connected at one end to and extending from the floating lever at a point intermediate of the ends thereof and connected at the other end to the upper end of the angular brake lever, whereby only a single floating lever is necessary, and means for connecting the upper ends of the outer brake levers with each pair of trucks of the car.

Charley McDonner, Manitowoc, Wisc., inventor. Two patents. Chas. Simono, Two Rivers, Wisc., assignee of the first patent, and Geo. Lambries, Manitowoc, Wisc., assignee of the second patent. Shade and Curtain Hangers.—The inventions of these patents relate to curtain fixtures, and the object of the inventions is to provide a curtain fixture adapted for hanging window shades and lace curtains, and capable of ready adjustment to suit the width of a curtain and to arrange the same either in front of a window casing or between the sides thereof. It is also an object of the inventions to equip the fixture with lace curtain supports capable of adjustment independently of the means for hanging the window shade, and without the shade and lace curtains or other hangings interfering with each other. The curtain fixture of the first patent comprises a bracket provided with a plurality of openings having a longitudinal slot located above the said openings, a pole supporting member having a fastening device operating in the slot of the bracket, and a slide provided with a lug extending through one of the openings of the bracket and supporting the latter and also located beneath the pole supporting member and forming a rest or support for the same.

The curtain fixture and hanger of

the second patent includes an approximately L shaped supporting member adapted to fit the corner of a window frame or casing and provided at its outer portion with a vertical eye or bearing, an inner adjustable bracket provided at the top with a hook to engage over the inner portion of the supporting member and depending therefrom and provided with an opening adapted to support one end of a shade when the same is arranged between the sides of a window frame or casing, an outer adjustable bracket also provided at the top with a hook to engage over the outer portion of the supporting member, and provided at its lower portion with an opening for supporting one end of the shade roller when the same is arranged at the face of the window frame or casing, and a pole supporting bracket provided at the inner end with a depending pivot to fit in the vertical socket or bearing of the supporting member and having outer upwardly extending arms for engaging a curtain pole.

Charles W. McDonald, Austin, Tex. Machine for Cracking Nuts.—The object of the invention of this patent is to provide a nut cracking machine, designed particularly for cracking pecans, and enabling the smallest or the largest nut to be rapidly and properly cracked so that the meat can be taken out whole and in perfect condition. It is also an object of the invention to provide a nut cracking machine of this character, adapted for cracking various kinds of nuts including Brazil nuts, black walnut nuts and shell bark hickory nuts, and constructed to permit a receptacle to be arranged beneath the nut cracking means in position to receive the cracked nuts, and capable by a single stroke of releasing a cracked nut to cause the same to drop into the receptacle, and to arrange the nut cracking means in position to receive another nut, thereby enabling the operator to pick up a handful of nuts with one hand and feed them rapidly one at a time to the machine, while continuously operating the latter with the other hand. The nut cracking machine comprises a frame having an attaching flange at its lower portion and extending upwardly and inwardly therefrom and provided at the top with a fixed projecting jaw, a clamp having a flange fitted against and secured to the said attaching flange and provided with an inclined upper edge for supporting the frame in an inclined position, a slidable member mounted on the frame and provided with a jaw and having a rack, and gearing mounted on the frame and meshing with the rack for moving the sliding member on its jaw toward and from the fixed jaw.

James C. Parker, Woodston, Kan. Printing Attachment for Paper Roll Holders.—It is the aim of the invention of this patent to provide a printing attachment adapted to be mounted in position on an ordinary paper roll holder, and capable of being automatically operated by the same in removing the paper from the roll, and adapted to adjust itself automatically to the roll as the latter decreases in diameter through the consumption of the paper. It is also an object of the invention to enable the printing attachment, without the use of springs, to cause the printing roller to exert a relatively heavy pressure on the paper roller, and at the same time permit the inking roller to exert a relatively heavy pressure on the printing roller. The printing attachment comprises in its construction opposite fixed guides, main slides operating in the said guides, a printing roller mounted on and carried by the main slides, auxiliary slides movably mounted on and guided by the main slides and also carried by the

same, and an inking roller mounted on and carried by the auxiliary slides and arranged to bear against the printing roller and maintained out of contact with the printing roller where there is no type by contact with the said slides.

Walter C. Powell, Columbus, Ohio. Sealing Machine.—The invention of this patent is designed to provide a machine adapted to hold two reels of gummed tape, and having means for supplying moisture to the same as the tape is drawn out of the machine, and also provided with a knife arranged to permit the moistened portions of the strip to be instantly cut off. The machine includes an approximately circular casing provided with a central vertical partition forming opposite tape receiving compartments, said casing being also provided at the front with transverse apertures extending from the partition to the sides of the casing, a spindle extending through the casing and adapted to support the reels of gummed tape, side plates covering the compartments, a knife located above the transverse apertures and extending entirely across the casing, a tank or receptacle supported on the casing directly below the apertures, and a moistening roll mounted in the tank or receptacle in position to receive the tape of either compartment. The machine permits the tape to be drawn out, moistened and severed with one hand, and it is provided with a tension device to prevent free rotation of the reels so that unnecessary slack tape will not be unreeled in the operation of the machine.

Peter G. Rapp and Peter H. King, Chicago, Ill. Two patents.—The first patent covers a nut lock adapted to be applied to nuts with a minimum change in the construction thereof, and capable of securely locking a nut against accidental unscrewing, and of easy manipulation to permit the nut to be removed when desired. The nut lock comprises a nut provided with a seat or recess at one side of the threaded bore and opening into the same, said nut being also provided with a slot or passage entering the seat or recess on the side remote from the bore, and a dog adapted to the seat to turn on an axis parallel to the longitudinal axis of the nut, said dog having a tooth formed on one side in position to enter the threaded bore of the nut, and provided on the other side with a socket coinciding in position with the slot in the nut when the dog is lodged in the seat.

The invention of the second patent covers a noiseless spring wheel designed for use on motor and other vehicles as a substitute for pneumatic tires, and capable of affording the desired resiliency and of permitting free play of the springs within safe limits, the wheel being equipped with means for relieving the springs of various strains to which a wheel of a motor vehicle is subjected, whereby injury to the springs is prevented. The spring wheel includes inner and outer annular members spaced apart, approximately elliptic springs interposed between the members, coacting blocks arranged within the springs and connected with the members and having coacting male and female blocks, the female blocks being provided with a recess and the male blocks being tapered to fit the recess and normally extending into but spaced from the walls thereof, a tire supported by the outer member, and side plates arranged at opposite sides of the inner and outer members.





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**FOR SALE**—Lamp Attachment. Patent No. 1,054,209, dated Feb. 25, 1913. Cash or on royalty, manufacture and place on the market. Address, Lenthel C. June, Hallstead, Pa. aug

**FOR SALE**—Patent No. 947,714. Barrel Cover Fastener. A great money-making proposition. Reason for selling, partner deceased. Address, Leclair Fastener Co., 105 Middle Street, Lewiston, Maine. aug

**FOR SALE**—Door and Gate Latch. Patent No. 1,043,236, issued Nov. 5, 1912. Can be used for swinging and sliding doors or gates. Working model will be sent if returned. Will sell at reasonable price. Address, August Johnson, Box 56, Gulliver, Mich. aug

**FOR SALE** or manufacture on royalty this valuable Patent No. 144,321, dated Nov. 26, 1912, in Canada. The device is a pump vent to keep frost from destroying the pipe. Address, Fred Garrard, Kimball, Nebraska. aug

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**FOR SALE**—U. S. Patents dated May 14, 1907, Pneumatic Tool; May 21, 1907, Tool Holder; August 6, 1912, Riveting Machine. Address, C. W. Meadowcroft, 4702 Large Street, Frankford, Philadelphia, Pa. aug

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**FOR SALE** outright or royalty—Patent No. 1,051,461. Stove Pipe End-Lock. Locking joints and elbows rigidly together. Any boy can operate. Adds practically nothing to cost of pipe. Address, Albert C. Smith, Mocasini, Ill. aug

**FOR SALE**—U. S. Patent No. 1,052,941, dated Feb. 11, 1913. A tool especially designed for valve spring on gasoline engine. Waiting to sell to the most reasonable bidder. For particulars address, C. Nyberg, Huntington, Long Island, N. Y. aug

**FOR SALE**—U. S. Patent No. 1,051,777, dated Jan. 28, 1913. Tube Swage. Has been thoroughly tested by Henry Endahl, Master Mechanic, of Oliver Iron Mining Co., in their shops at Coleraine, Minn. The steam hammer operator has swaged 125 tubes in one hour. Address, Albert J. St. Mars, Gold Butte, Montana. aug

**FOR SALE**—Fly Cupper, Patent No. 1,055,240, issued March 4, 1913. A most efficient device for clearing a house of flies. Several hundred may be disposed of in a few minutes without handling. Simple, inexpensive, and easily demonstrated. Address, E. P. Sutton, Ellsworth, Maine. aug

**FOR SALE**—Patent No. 1,055,935, issued March 11, 1913. Automatic Stove Damper. Fuel saver and fire preventer in flues and chimneys. Outright for one thousand dollars. I have no means for promoting. Address, Charles N. Mignery, Julian, Nebraska. aug

**FOR SALE**—Patent No. 1,053,795, issued Feb. 18, 1913. Double bottom copper lined vehicle body for motor trucks and horse-drawn vehicles. Any size of delivery. Especially adapted for ice cream manufacturers, dairies, brewers, etc. Perfect protection to machinery and gearing from salt brine or any sloppy substance. Address, Preston A. Ellis, Celin, Ohio. aug

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**FOR SALE**—Dam. Patent No. 1,047,342. Concrete, convex upstream ends, dovetailed into banks; reinforced with railroad rails or rods. Foundation 40 feet below streams bed. Withstands floods, ice jams, heat or cold. Self-supporting life and property. Absolutely safe. Address, F. L. Vars, Nile, N. Y. jun

**FOR SALE**—U. S. Patent No. 1,017,456, issued Feb. 13, 1912. Improvements in tires for automobile wheels. A yieldable tire that is puncture-proof, non-skidding, strong and durable. Will sell outright or on royalty. For particulars address, William Pavlik, Box 132, Bayport, N. Y. jun

**FOR SALE**—Patent No. 1,030,028, dated June 28, 1912. Spark Arrester. Particularly designed for locomotive smoke stacks. Will prevent sparks and cinders from being ejected therefrom. Simple to build and cheap to manufacture. Address, Stampahar & Rom, P. O. Box 584, Red Lodge, Montana. jy

**FOR SALE** cash or royalty—Patent No. 1,050,660, issued Jan. 14, 1913. Quick Sink Well Bucket. Sinks instantly without slack rope, before windlass can be reversed. Looks like ordinary bucket, costs about same to make. Address, Luke G. Johnson, Gainesville, Ga. jy

**FOR SALE**—Patent No. 1,041,904, dated Oct. 22, 1912. Elevator Safety Clutch. Very simple and inexpensive to construct. Works to perfection. Address, James F. Tighe, No. 883 Belmont Ave. W. Philadelphia, Pa. jy

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**FOR SALE**—Patent No. 1,046,516, granted Dec. 10, 1912. Hose protector, designed to be inserted in a shoe to prevent boot blacks from soiling the hose, when shining or scrubbing low shoes. Will fit any shoe. Can be manufactured very cheap. Address, William Washington, 135 East Broad St., Burlington, N. J. jy

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**WANTED**—A company formed to handle several new games and small novelties, which manufacture cheaply—turn over quickly—and have big profits. Great mail order opportunity. Will take small amount of cash, and balance stock in company. H. C. Shipman, Ottawa, Canada. jun

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## THE QUALIFICATIONS OF A COMPETENT PATENT SOLICITOR AND LAWYER.

In another column we have reprinted an article which appeared in the *Wisconsin Engineer*, of Madison, Wis., entitled "The Profession of Patent Law." We have printed it in full because it contains so much matter that should become known, not only to students generally, to whom the article was particularly addressed, but to inventors as well. As the writer of the article well said:

"One would suppose that inventors themselves would be able to point out to their patent solicitors the essential features of their inventions and to distinguish these essential features from the unimportant details. Some inventors have that faculty of analysis, but a complete lack of it is more nearly the rule. It devolves upon the patent solicitor, therefore, to see into and through the invention submitted for his consideration and to pin his claims to the essentials."

Many inventors apply for patents without employing an attorney. They do this for a number of reasons: First, to save the attorney's fee; second, they have the ungrounded fear that some attorney will steal their inventions; and, third, they have probably had experience with some incompetent attorney, and they class all attorneys together and think that they can handle the matter better themselves.

When an inventor applies for a patent, he is usually confronted by a letter of rejection from the Patent Office, which from his lack of experience he construes to be final. Without making any attempt to overcome the same, possibly thinking the Examiner's reasons of rejection are insurmount-

able, he "throws up the sponge" so to speak, and the application is abandoned, with the result that the inventor never obtains a patent. Some inventors who are more persistent may make an effort to overcome the objections urged, and they may give the Examiner and themselves considerable trouble by these attempts. Because of lack of understanding of the Rules of Practice and the decisions of the Patent Office and the courts, they may not know how to meet the objections, or they may concede points which by argument or by appeal, might have been saved. From our observation and experience we believe that there is not one inventor out of a thousand who is able to prosecute his own application, and even in a case where he is competent, it would be worth the attorney's fee to him to employ an attorney to go over his work, in order to detect errors he may have made in the application.

Inventors are rarely able to suggest modifications or other ways of accomplishing the same purpose, but a skillful attorney can frequently see how the construction shown in the application might be varied without departing from the general spirit of the invention. The prime requisite in the employment of an attorney is to obtain the benefit of a trained mind in examining the invention made the subject-matter of the application, in determining the essential and non essential features, and finally in drawing the claims so as to cover the essential elements by the use of broad terms. As the writer of the article observes:

"In order to be a successful solicitor of patents, a man must have a quick and active imagination, otherwise he will fail to foresee the variations which may be made in carrying out the inventive idea. If the solicitor fails to foresee the possible variations, he is not likely to draw claims of a scope broad enough to cover effectively his client's invention."

The ability of an attorney is determined largely by his possession of a "quick and active imagination." An attorney who is able to discern other ways of accomplishing the same result shown in the application for patent under consideration, and can draw claims to cover the different modifications, is a better attorney than one who can see only the thing before him and will seek merely to cover the specific device embraced in the application. The successful patent solicitor is the one who is able to peer into the future and see the variations of which the invention is susceptible, and then draw the claims of his client to cover the improvements

which others are likely to make along the same line.

Another point made by the writer was:

"The patent solicitor who is best informed upon the scientific principles upon which engineering practice is based, will best succeed in drawing a specification and claims adequate to cover his client's invention."

Nothing truer than this has ever been said, and yet how few patent solicitors come up to this standard. Some patent solicitors are lawyers who have not had any scientific training; others have been clerks in patent solicitors' offices and what scientific knowledge they have acquired has been picked up in the course of their practice. No training is too exacting for a patent solicitor, and yet many of the solicitors of patents in actual practice have had about as much training in mechanics as a motorman of a street car. Every profession has its percentage of charlatans and pettifoggers, though we have sometimes thought that the profession of patent solicitor has a larger proportion of this class than others.

We welcome the dissemination of information, such as that contained in the article that we have reprinted from the *Wisconsin Engineer*, as tending to make clear to the public what a patent solicitor ought to be, and contributing in a measure towards raising the standard. We hope that our readers will profit by a careful perusal of the article, and that our exchanges will reprint it. The profession of patent law is a noble profession, but it has been dragged in the dust by the chicanery and the unethical practices of certain alleged attorneys, whose operations and methods serve to lower the standard to that of a quack doctor. Why something is not done to correct the evil which exists we do not know. It is just as much a menace to inventors as the Payne-Aldrich tariff law was a menace to the growth and development of the country. We hope that we will live to see the day when patent soliciting will be placed on the high plane which it deserves to occupy, and that only those who are qualified by education and training will be permitted to practice that profession, either in the courts or before the Patent Office. Such a change in present conditions cannot come too soon for the benefit of the public.

### Wanted:—A CHANGE.

In our issue for February, we commented upon the prospective appointment of a new Commissioner of Patents. Three months have elapsed, and the appointment still languishes. Whatever may be said of the advantages in favor of the Civil Service as applied to the minor offices, there is not a single good reason why the protection of the Civil Service should be extended any further. The government departments are suffering from "dry rot," and this is particularly true of the U. S. Patent Office. A change is wanted, and a very radical

change at that. Ask any man who is familiar with conditions within the Patent Office and he will agree as to this. Inquire of any attorney practicing before the Patent Office, and he will express himself in very forcible language concerning the intolerable conditions that have grown up by the adoption of practices and methods which no one seems to have either the courage or the ability to terminate. This thing of appointing a Commissioner of Patents by elevating to that office a former Examiner, or some other official within the Patent Office, should stop. It should never be repeated. A live man, a man who is familiar with court practice, some one who has a closer acquaintance with a patent than the mere examination of a printed copy, should be selected for this office. He must needs be a progressive man, not a stand-patter. He should be a man of ability and force, some one who, when he sees an evil practice grounded in precedent, will have the courage to strike down the precedent and establish a new one. An able attorney skilled in the practice before the Patent Office, and having large experience before the courts, knows just what the trouble with the Patent Office is, and can apply the remedy. The difficulty is in finding the man. Though we are anxious to see the office filled and the new administration started on its work, it would be far better to wait six months, or even longer, than to promote some official in the Patent Office whose aim and practice would be to carry out the policies of his predecessors. There is nothing that so unfits a man for holding a high public office as the experience gained in holding a small one. He becomes so hide-bound in his adherence to rule and precedent that he is never able to see beyond the strict letter of the rule, or the exact detail of the precedent. He reads the words of the decision without noting the application of the decision. He interprets a decision according to the language used, rather than in connection with the particular case decided. With all due deference to the examining corps, and those able men who largely compose that body of experts, we insist that the best interests of inventors demand that the Patent Office should be presided over by an attorney of ability and wide experience, progressive in his ideas, and having the requisite force to carry forward the reforms which must be inaugurated if the Patent Office is to afford real protection to the interests of inventors.

Inventors who read this article can do no better service than to cut it out and send it to their Congressman or Senator, or to the President himself, in order that he may understand that there is a real live sentiment in behalf of the proposition we have advanced.



### Submarine Fiddling.

"Submarine fiddling" says *Popular Mechanics*, is the latest device adopted in the United States Navy to make more effective its means of communication in times of war. The phrase tersely describes the plan for signaling from submarine torpedo boats. On one side of the boat are two steel projections, to each end of which is fastened a tightly stretched wire that rests against the roughened rim of a wheel. When the wheel revolves the wire is set in vibration as a violin string is agitated when a bow is drawn across it. The wheel, which plays the part of a bow, is connected by a shaft with an electric motor, and the motor is controlled by a Morse telegraph key. When the key is pressed the wheel instantly begins to revolve and the wire is caused to vibrate. Any operator may use the key as he would that of an ordinary telegraph, and vibrations are set up in the wire corresponding to the dots and dashes of the Morse system. The receiver may be placed under water off shore and connected by telephone wires with a station on land. Trials show that the vibration of the wire can be detected at a distance of five miles, an ordinary telephone receiver being employed to catch the message.

### Most Powerful Automobile.

The strongest automobile in the world will soon be seen running through the streets of Jersey City, taking the place of eight horses now employed to haul freight cars from the yards to the factory spurs. It weighs nearly 29,000 pounds, is 22 feet long and eight and a half wide. It is operated by electricity and is fitted with 80 of the largest storage batteries ever known. Its speed is eight miles an hour and enough current can be stored to carry it forty miles without recharging the batteries. It was recently tested in a tug of war with a "hog" freight engine, one of the most powerful types of locomotives. The big automobile, the wheels of which ran on the ground, slowly pulled the engine away, although the engineer had on all the steam his boilers could generate. It is intended to end the danger of drawing cars through the city streets by horsepower or steam, as it is impossible to stop a train of cars suddenly in an emergency, and accidents have resulted. It has been found that this tractor, with a train of cars behind it, can be stopped within a distance of two feet by means of air brakes operating on the cars and tractor simultaneously. A device in the draw heads at each end of the auto takes up the shock of sudden stoppage, the drawbar working in compressed air. It requires a 10,000 pound pull to bring the metal parts into contact. In the interior of each wheel is a large cogwheel, which fills all the space except a few inches within the outer rim. At the top is a smaller cog on a shaft independent of the wheel axle, its teeth meshing with the larger cog. Each wheel is driven independently of the

others, and is steered and braked separately, but the motions are simultaneous. The air appliance not only applies the brake, but stops all the power in the machine and locks the power levers, which no accident can set in motion again until the air brake is thrown off.

### Trackless Trolley Help Horses Uphill.

Again has machinery come to the aid of Dobbin, and this time in that peculiarly difficult task of dragging loads uphill. In one of the busy industrial districts of England there is a hill 1800 feet long, with a gradient of five and a half per cent. It has been estimated that an average of two hundred vehicles per day ascend this trying grade, with loads varying from five to seven tons. The horses had great trouble in gaining the top, but now tractors have been installed, and there is no further difficulty. The machines work on the trackless trolley system, gaining their power from overhead wires, but needing no tracks on the ground to run on. Each machine is capable of dragging three wagons simultaneously. The horses merely walk to the top without exerting themselves, and at the summit a special device permits the wagons to be uncoupled from the machines without stopping, so that the horses get the benefit of the momentum for their continued journey. The tractors use the power only on the up trips, going down without touching the wire. The trip up takes eight minutes, the descent 7; thus 4 trains with 12 wagons and from sixty to eighty-four tons per hour can be handled by each tractor. The charge made for this service, it is found, is repaid by the time gained, and the saving in fatigue to the horses.

### Food from Waste Products.

The daring project of the chemist in the universal fight for lower cost of living, says the *Literary Digest*, is to build food supplies from simple elements by means of laboratory processes, and thus eliminate the tedious methods of Mother Nature which involve the slow and complex life-processes implied in "raising" things to eat, whether vegetable or animal. It has long been possible to produce many of the carbohydrates synthetically, and now it has been shown that even nitrogenous compounds may be thus built up, and that such compounds will support life, being assimilated by the body as well as the natural albumens contained in meat. As yet, such processes are more slow and costly than nature's time-honored plan. But a third expedient presents itself—that of so modifying certain waste products which contain nitrogenous elements as to render them fit for food. The Belgian chemist Effront has been devoting much study to this subject, and with such success that he now declares that excellent and nutritious food substances may be prepared at very low cost from what is thrown away by breweries and distilleries. He even goes a step farther and obtains human nutriment by the treatment of clover and hay, extract-

ing their food elements without the intermediary of the animal that transforms them into meat. Effront says that it is not necessary to fabricate nitrogenous compounds, when the industries offer us so many waste products which contain these very compounds manufactured by Nature. In the body these albumens undergo a chemical alteration by the addition of water, which makes it possible to assimilate them. But this can be done outside the body as well as in it, and Effront does this to make them more digestible. He removes the sugar which remains in the refuse of breweries and distilleries, and then washes and compresses the residue, and mixes it with sulphuric acid. In this way there is obtained, at the end of several days, a solution in which nitrogen is present. Lime is added to neutralize the sulphuric acid, the calcium sulphate formed is filtered out, and the liquid evaporated in a vacuum pan. The paste thus obtained is said to be three times as nourishing as meat, and to possess a strong "meaty" flavor. This "near-meat" has been proved by experiment to be excellent food.

Effront has gone a step beyond this, by practical attempts to render available for human food the inferior albumens present in hay and clover. "Why charge the ox or the sheep," he asks, "with the task of transforming these elements into a complex albumen which is not utilized by man until it has been degraded into simple compounds by means of digestion?" He claims that the chemist may take the place of the animal, and makes good his claim by preparing an available human food from the fodder of beasts. Whether this will be palatable or not is another question. It is also a question whether, if their use becomes general, it would not involve changes in the alimentary canal. Certain parts of this might become useless, since the juices required for the digestion of meat are not demanded for the new foods.

### The Transatlantic Aeroplane.

The English papers have been announcing that Claude Grahame-White, the renowned airman, is making preparations for the construction of a machine that will carry himself and another person across the Atlantic ocean. His airship will have four engines, and he expects to make the trip from Ireland to Newfoundland within 30 hours. The honor of being the Columbus of the skies, however, may be won by an American. Two young men, Allen Canton and J. J. Meckler, have put about \$20,000 into the building of a huge aeroplane, with which they are planning to cross the ocean this year. These young aviators, who have had five years' experience with different types of flying machines, realize that in such a journey, everything depends upon fuel and power. Their machine, which is called the New York, carries 22-tanks of gasoline and five powerful motors. It is 104 feet from the forward propeller to the rudder, and 76 feet from wing tip

to wing tip, giving a spread of 1400 square feet of canvas, and a lifting capacity estimated at 20,000 pounds with two of the engines running. It is intended to run and rest the motors alternately, the extra ones assisting, of some being under repair all the time.

The New York is a biplane, its design being a cross between the Wright and the Farman, and it is made of special tubing seven-sixteenth of an inch thick, of a soft steel remarkable for its resiliency and flexibility. The machine itself is built in truss form, the central section being steel tubing three quarters of an inch thick. There are two small rudders to guide this huge spread of canvas, one in front and one at the tail, and two balancing planes, one on each side of the craft, which aid in steering and bank the machine on a curve. These planes are so arranged that, in the event of accident to the rudders, they will act for steering. The inventors say that they have tried these compensating planes on small aeroplanes with perfect results.

It is intended to carry a wireless equipment on the aeroplane, also an instrument which will indicate the exact geographical position of the vessel at any time. The engine equipment consists of five motors, four of 125 H.P. and one of 65 H.P. The big engines are mounted in pairs, and the auxiliary engine in the rear. Should the ship drop into the water and the entire plane be broken, it can be used as a motor boat to get to port, the gasoline tanks underneath acting as a float. There are 22 of these gasoline tanks, with a capacity of 50 gallons each. Seven hundred gallons of gasoline will be carried. There are also two lubricating oil tanks of 80 gallons each, and one water tank holding 50 gallons. There will be six empty tanks acting as pontoons. The buoyancy of these tanks totals 28,000 pounds. With the machine fully loaded and resting on the ocean, it will draw only about 3 inches of water.

The bottom of the craft is enclosed in thin sheet metal, forming practically a boat bottom. The tanks are built of a light material, and are of a peculiar ribbed formation, enormously strong, each under test having supported ten men without buckling. These tanks complete weigh less than 19 pounds each, and as noted, they form pontoons, half of them being carried for that purpose.

The craft is expected to attain a speed of 75 miles an hour, and the inventors believe they can make the crossing in 60 hours, driving about 50 feet above the surface of the water. They will take only a small quantity of canned goods, to avoid the risk of cooking in the air.

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Threshing machine feeder attachment.....F. W. Carpenter  
Ticket cutter.....A. I. Blanchard  
Tie and rail fastener.....A. Gabler  
Time recorder.....F. T. Riley  
Tire.....M. L. Keagy  
Tire.....H. C. Tripp  
Tire armor.....A. Turnbull  
Tire casing, Pneumatic.....N. W. McLeod  
Tobacco from nicotin, Freeing.....J. Sartig  
Tobacco leaves, Apparatus for assembling and suspending.....A. Schneider  
Tobacco pipe, Magazine.....W. W. Warden, Jr.  
Toe straightening device.....W. M. Scholl  
Tool, Mechanically actuated.....E. H. Thompson  
Track construction.....C. R. Keck  
Traction engine.....H. J. Heider  
Train-controlling device, Despatcher's.....J. Henri  
Train-stopping device.....J. M. Kramlich  
Trap door.....A. Mollenhauer  
Tricycle, Motor.....N. C. Whiting  
Trimming and pruning machine.....J. E. Krayner  
Triple bar.....T. Canfield  
Trousers presser.....W. T. Luckey  
Trowel, Plasterer's.....C. Mason et al.  
Truck.....J. J. McCoy  
Tube-bending machine.....J. Ruckstinat  
Tube clamp.....W. E. Payne  
Tube expander.....J. C. Tasssey  
Turbine, Hydraulic.....A. B. Wood  
Type-casting machine.....P. T. Dodge  
Typewriter.....R. A. Spurgin  
Typewriter (Reissue).....G. W. Dudley  
Type-writing machine.....H. S. McCormack  
Type-writing machine.....B. C. Stickney  
Type-writing machine.....F. F. Main  
Type-writing machine.....F. A. Cook  
Type-writing machine.....C. W. Sponsel  
Type-writing-machine paper guide.....E. W. Bache  
Type-writing machines, Type-bar-bearing support for.....O. C. Kayle  
Umbrella.....F. P. Anello  
Umbrella, Folding.....L. Larsen  
Umbrella-runner lock.....C. H. Reid  
Valve.....O. L. Smedberg  
Valve.....J. J. Meyer  
Valve.....N. B. Mitchell et al.  
Valve, Automatic.....H. J. Long  
Valve device, Uniform-release triple.....W. V. Turner  
Valve, Disk.....C. F. Henry et al.  
Valve, Flushing.....A. H. Johnson  
Valve for internal-combustion engines, Exhaust.....J. F. Knowlton  
Valve for spraying purposes, Relief.....R. L. Aldridge  
Valve for wind instruments.....E. S. Conrad et al.  
Valve, Thermostatic.....J. W. Barton  
Vault, Burial.....J. C. Snyder  
Vehicle air-cushion device.....J. G. Funk  
Vehicle body (2 pats.).....B. L. Craig  
Vehicle body.....G. B. Radford  
Vehicle controlling mechanism, Motor.....M. Tibbetts  
Vehicle door, Sliding.....W. W. Ellis  
Vehicle spring suspension.....E. Bugatti  
Vehicle street indicator.....G. M. and H. S. Bradshaw  
Vehicles, Illuminated number plate for motor.....W. H. Seaser  
Vending machine, Automatic.....R. B. Craig et al.  
Vending machine, Automatic.....A. Coffman et al.  
Veneer-drying device.....M. R. Ritter  
Vial-bottoming machine.....E. E. Kimble  
Vise.....L. S. Whitehead  
Voting machine (4 pats.).....J. H. Dean  
Wagon, Ammunition.....W. Mayer  
Wagon attachment.....F. C. Doody  
Wall clamp and post, Combined.....C. W. Mills et al.  
Washing machine.....J. C. Shirer  
Water agitator.....T. F. Pharo  
Water-circulating-system heater.....R. M. Dixon  
Water heater.....L. P. Silverman  
Wave motor.....J. Willy  
Weighing and feeding machine for textile fibers, Automatic.....D. C. Fisher  
Well and drainage casing, Making plates for.....A. Smith  
Well-drilling rigs, Sand-reel for.....J. A. McDonald  
Wheel rim.....F. R. Barker  
Wheel rim, Vehicle.....E. C. Shaw  
Wheels, Lock for motor vehicle steering.....L. E. Landes  
Wind shield.....I. G. McQuillan  
Wind mill.....J. W. Bennett  
Wind mill.....R. L. Neal et al.  
Winding machine, Cloth.....E. A. McMillin  
Window cleaner.....W. Jones  
Window, Metallic pivoted sash.....J. F. Ruth  
Window screen.....G. F. Born  
Window screen.....E. W. Pendery  
Wire cap.....C. J. Carroll  
Wire-feeding device.....O. Anchell  
Wire-mesh fabric.....C. A. Kulenkampff  
Wire stretcher.....F. R. Richards  
Wrapping machine.....G. I. Hohl  
Wrench.....R. C. King  
Wrench.....F. E. Glover  
Wrench.....J. H. Jenner  
Wrench.....G. C. Ferguson  
Wrenches, Pipe-wrench attachment for monkey.....W. Esterberg

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- Abbrading machine.....D. W. Moffitt  
Abbrading wheel.....J. H. Reed  
Account register.....C. E. Johnson et al.



- Acetylene, Mechanism for the generation and storage of.....F. H. Lippincott  
Aerating device, Liquid.....H. V. R. Read  
Aerodrome.....A. Huth  
Aeroplane.....J. W. Lyons  
Aeroplane.....P. Andersen et al.  
Aeroplane.....J. F. De Villa  
Aeroplane rudder.....J. R. Froberg  
Air-compressing apparatus.....J. Desmond  
Air or gas-pumping apparatus, Centrifugal.....W. Kieser  
Airship, Military and passenger.....J. E. Cooper  
Alfalfa, Milling.....T. Ponsar  
Ammonia, Condensing.....L. Block  
Animal trap.....E. H. Sloan, Jr.  
Animal trap, Steel.....F. F. Ellis  
Antiskid device for wheels.....F. Yonng  
Antislipping device for vehicle wheels.....W. P. Deonier  
Arms, Supporting harness for artificial.....W. T. Carnes  
Assorting machine.....H. B. Ritchie  
Atomizer.....O. B. Gilman  
Automatic combination wrench.....T. W. Gibson  
Automatic gate.....I. J. Harvey  
Automobile runner attachment.....E. L. Schuh  
Automobile wheel.....G. L. Griffith  
Automobiles and the like, Blanket holder for.....J. T. Delaney  
Automobiles, bicycles, and the like, Tube for.....E. J. Andrieu  
Automobiles or other vehicles, Device for jacking up.....H. S. Tuttle  
Axle holder, Vehicle.....W. E. Eastman  
Axle lubricator.....F. W. Martin  
Bag frames, Making.....F. A. Fuller  
Bait, Artificial fish.....C. O. Blee et al.  
Bale tag.....G. S. Lowndes, Jr.  
Balloting device.....H. C. Cook  
Bank, Alarm.....C. Sayers  
Barrels, Machine for making sheet metal.....J. H. Killion  
Battery-plate separator.....H. E. Pratt  
Bearing, Roller side.....A. Stucki  
Bed and crib screen.....K. Schweda  
Bed, Collapsible.....L. Biro  
Bed, Metallic.....I. Geller  
Bed, Wall.....N. B. Douglass  
Beet-topping machine.....F. and J. E. Nickolai  
Belt shifter.....G. K. Atkinson  
Beverage-producing material.....M. W. Montgomery  
Bicycle frame.....W. E. Newton  
Binder and fastener.....A. G. Rembitt  
Blackening machine, Heel.....G. L. Rollins  
Block-making machine.....R. L. Rickman  
Blower, Rotary.....N. W. Macintosh  
Blower, Steam.....P. F. Reinhart  
Boats, Driving gear for motor.....J. J. Stover  
Boiler-tube scraper.....G. F. Nyberg  
Bolter.....R. A. Reynolds  
Bonnet.....M. E. Baldwin  
Book marker.....H. S. Carson  
Boring machine.....T. J. Watkins  
Bottle, Feeding.....E. W. Morgan  
Bottle, Non-refillable.....J. C. Roth et al.  
Bottles or other receptacles, Closure or stopper for.....J. C. Roth et al.  
Box-blank-finishing machine.....E. E. Flora  
Box-covering machine.....J. A. Butler et al.  
Box fastener.....J. E. Yost  
Bracelet.....T. W. Foster  
Bracelet joint.....N. C. Wallentin  
Brake beam.....W. E. Fowler, Jr.  
Brake head, Adjustable.....C. F. Murray  
Brick.....W. H. Watts  
Broom.....D. N. Jacobs  
Brush, Fountain shaving.....D. H. Hawes  
Brush holder, Hat.....G. A. Fredrickson  
Brush, Sanitary shaving.....N. Ellis  
Bucket.....H. S. Atkinson  
Bucket holder, Adjustable.....S. E. Harris  
Building.....R. O. King  
Burglar and fire alarm.....F. Carlson  
Burners, Starter for hydrocarbon.....H. Lemp  
Business systems, Means for carrying out.....E. Caverly  
Button shank.....F. J. Tahl  
Cabinet.....G. S. and C. L. Elmquist  
Cable hanger.....C. Lingle  
Cables, Tap for multiple conductor metallic sheathed.....H. E. Adams  
Cables, Working submarine.....J. Gott  
Calculating mechanism.....F. A. Poole  
Camera.....H. Cronjager  
Cameras, Multiple-exposure attachment for.....N. Rusk  
Cane mill.....A. F. Delbert  
Canopy support, Portable.....T. M. Fly  
Cap, Bathing.....A. Stern  
Car and dump car, Convertible flat-bottom freight.....W. P. Bettendorf  
Car, Combination stock and freight.....J. C. Bertsch  
Car coupling.....E. F. Powell et al.  
Car, Elevated railway.....B. B. Allen et al.  
Car fender.....J. F. Johnson  
Car-frame construction.....H. M. Pfager  
Car, Pay-as-you-enter.....R. D. Webb  
Car-platform extension.....J. C. Mayo  
Car roof.....W. S. Bidle et al.  
Car-roof construction.....J. A. Costello  
Car stake.....J. R. Murphy  
Car-stake, Releasable.....W. Houghton  
Car step.....J. N. Marquette  
Car step and catch therefor, Extensible.....A. A. Hammell et al.  
Car step, Extensible.....J. M. Cordray  
Car step, Folding.....A. T. Mills  
Car, Tank.....H. C. Priebe  
Car, Turn-table.....S. D. Wright  
Car ventilator.....W. L. Walsh  
Car-vestible diaphragm.....W. H. Forsyth  
Car-vestible door and trap, Railway.....W. H. Carroll  
Car wheel and axle.....J. R. Fleming  
Carbonating apparatus.....C. L. Bastian  
Carborundum composition.....L. Sirmont et al.  
Carrying apparatus, Raising and lowering.....J. C. Fitzgerald  
Cash register.....F. Kronenberger  
Casting and compression machine, Ingot.....L. E. Howard  
Casting machine, Die.....L. K. Parkhurst  
Ceiling-block connector.....L. F. Hopfer  
Chain-link-forming machine.....C. L. Hoff et al.  
Chair.....S. O. Frantz  
Chair attachment.....A. Lindner  
Chair attachment.....K. C. Hurlbut  
Chuck, Automatic centering.....E. H. Mead  
Chuck, Drill.....F. Wiard  
Chuck, Eccentric.....F. A. Wennerstrom  
Cigar lighter.....W. Ude  
Clasp.....W. F. Graham  
Clasp.....C. E. Peterson  
Clipping tool.....W. B. Myers  
Clock movement, Front-winding.....W. E. Porter  
Clothes rack.....J. Freirich  
Clutch, Automatic compensating magnetic.....A. W. Whitecomb  
Clutch, Double-acting.....W. C. Huebner  
Coal and other material, Apparatus for drying washed.....C. Carlett et al.  
Coal-screening tower.....G. E. Titcomb  
Coaster.....L. S. Murdock  
Coating articles, Apparatus for.....J. J. Naezel  
Coffee machine (2 pats.).....C. Nelson  
Cogs, Holding device for.....W. Jenkins  
Collar.....A. H. Parsons  
Combing machine, Heilmann.....J. C. A. Wenning  
Composing machines, Escapement mechanism of typographical.....C. Muehlisen  
Compressor, Rotary.....W. Kieser  
Concentrating table.....G. H. Elmore  
Concentrating table, Pan motion.....K. Senn  
Concentrator.....A. R. Wilkey  
Concrete keg.....J. M. Thompson  
Concrete mixers, Distributing spout for.....E. W. Brackenbury  
Concrete mixers, Splash plate for.....C. E. Bathrick  
Controlling mechanism, Electrically operated.....J. C. Heintz  
Cooker, Fireless.....H. M. Sheer  
Cooking utensil.....F. Humphrey et al.  
Core or arbor, Expanding.....H. E. Wood  
Corks, Treatment of.....L. Pink  
Corks with resisting central layers, Coating.....L. Pink  
Corn-gathering and husking machine.....A. Asper  
Corn-husking machine.....A. Asper  
Corn shield.....F. C. Brown  
Corn tester, Seed.....J. M. Sullivan  
Cotter pin, Self-locking.....W. A. Lorenz  
Cotton chopper.....W. S. Roderick et al.  
Cotton gin.....G. L. Spencard et al.  
Cotton, Treating.....F. J. Mauborgne  
Counter, Repeating.....W. Grunow, Jr.  
Crate.....H. Brown  
Crate-cover fastener.....M. Wesley  
Cups, Machine for forming metal.....J. E. Dobson  
Current motor.....J. H. Martin  
Curtain appliance.....A. Balazs  
Curtain hanger.....J. Umstatter  
Curtain holder.....A. Dahlberg  
Curtain holder.....G. A. Benoit  
Curtain roller.....R. V. Henry  
Curtain support, Adjustable.....E. Hollis  
Curtains, draperies, and the like, Support for.....L. J. Schneider  
Cushion-tired wheel.....N. Gratz  
Cushion wheel.....W. D. Simpson  
Cushioning device.....J. N. Randle  
Cuspidor.....F. Georgelin  
Cut-off device, Automatic.....L. D. Crouch  
Cutter-head-securing means.....P. A. Solem  
Cutting die.....E. Pocock  
Cycle frame, Motor.....A. H. Bilsten  
Cycles, Change-gearing for motor.....J. Parco  
Cylinders of cardboard and the like, Machine for making.....E. C. Lovell  
Dental-engine handpiece.....A. R. Keltie  
Dial test indicator.....F. Laplant  
Dispensing apparatus.....H. B. Griel  
Dispensing appliance.....M. W. Schloss  
Display holder.....F. Burghardt  
Displaying and dispensing beer, Counter apparatus for.....T. C. Walter  
Displaying mechanism for cash registers or tills, Advertisement.....W. R. Harvey  
Door.....G. H. Hess  
Door and securing means therefor.....W. M. Gray  
Door and window lock, Pocket.....W. H. Allison et al.  
Door hanger, Releasing.....E. P. Farley et al.  
Door holder.....H. H. Barnett  
Door-lock, Permutation.....W. C. Loy  
Door mat.....W. Wirz  
Doubling and twisting machine, Thread.....G. F. Macfarlane  
Draft device.....J. R. and G. Mitchell  
Draft equalizer.....W. B. Homer  
Draft equalizer.....J. H. Joneson  
Draft-rigging, Tandem spring.....J. R. Mitchell  
Dredge.....W. S. and E. F. Curtis  
Drier.....W. E. Prindle  
Drill-rope coupling.....W. W. Parmeter  
Drinking cup, Sanitary.....H. Hill  
Drinking fountain, Bubble.....F. A. Thomas  
Driving and releasing mechanism.....F. Tomlinson  
Dust collector.....W. T. Harder  
Dust collector, &c.....A. Jorgensen  
Dust-collecting screen.....J. Adler  
Dustless cloth.....J. L. Sporer  
Dyeings on cotton, Producing.....E. Wugk  
Dyes, Black frizado.....A. Blank et al.  
Easel.....Kislovitz  
Electric-box connection.....F. H. Ward  
Electric-cable connector.....E. H. Faile  
Electric-circuit cut-out.....H. M. Scheibe  
Electric furnace for melting and liquefying ferro-alloys.....W. Schemmann et al.  
Electric switch.....H. J. Wiegand  
Electrical connections, Junction block for making.....A. K. Andriano  
Electrode, Bipolar intragastric.....A. G. Hurdman  
Electrolytic cell and maintaining the efficiency thereof.....W. M. Jewell  
Electricity, Transformer of.....J. W. Davis  
Electrolyzing streaming electrolytes.....J. G. Paulin  
Electromagnetic regulating or controlling means for valves or the like.....T. J. and E. Rorke  
Elevators, Bucket line for oil and water.....S. W. Mack  
Engine mounting.....C. E. Brooks  
Engine starter (2 pats.).....P. W. Hodgkinson  
Engine starter.....G. J. Spohrer  
Engine-starting device, Internal-combustion (2 pats.).....A. C. Thompson  
Engines, Automatic mixer and charger for gas.....A. P. Gubrud  
Engines, Electric cut-off for marine and other steam.....R. Zoppa  
Engines, Electric ignition system for internal-combustion.....A. Diemer  
Engines, Gas mixer and heater for explosive.....S. P. Watt  
Engines, Roll and bars for beater and washer.....H. R. Simonds  
Envelope machines, Gumming device for.....O. Hartenfels  
Excavating apparatus.....J. G. Fairbanks  
Excavating machine.....L. A. Krupp  
Excavating machine.....C. S. Brown et al.  
Exit, Safety.....C. B. Woodward  
Expansion bit.....L. S. Hayden  
Explosive.....L. G. M. Adinau  
Explosive and producing same.....F. Raschig  
Explosive, Sulphite waste.....F. Raschig  
Explosives, Continuous process for producing.....F. Raschig  
Extension table (2 pats.).....J. Mohr  
Fan.....H. A. Happich, Jr.  
Fan, Rotary.....W. Sparks  
Fanning mill.....L. T. and J. N. Skriveth  
Fastener for bags, trunks, &c.....J. Hill  
Faucet-protecting attachment.....E. W. Buckingham  
Feed and litter carrier.....H. L. Ferris  
Feed bag.....J. H. Beals  
Feed-water heater.....J. Muchka  
Feed-water heating arrangement on steamships.....W. Weir  
Feeder, Entrance bee.....F. Danzenbaker  
Fence gate.....E. E. Ertzman  
Fence-post brace.....L. Olson  
Fence post, Metal (2 pats.).....H. Higgin  
Fence post, Reinforced.....J. H. Downs  
Fender.....W. L. and W. A. Ross  
Filing books or file cases, Leaf for.....E. C. Ward  
Filing device.....R. E. Lutz  
Films, Manufacture of metallic.....F. Demel  
Finger-print-card clip.....P. A. Flak  
Fire-clay substitute.....P. Kinander  
Fire escape.....W. H. Smith  
Fire-pot burner.....N. W. Lundy  
Fire-protection signal system, Automatic.....J. E. Shepherd  
Firearms, Registering attachment for.....A. Rey  
Fireproof sheathing for structural steel.....T. H. Skinner  
Fish hook.....R. A. Bonnell  
Fishing reels, Spool for.....W. Kramer  
Fishing tool.....T. E. McKee  
Flue section.....W. D. Ives et al.  
Flue tubes, Retarder for.....H. Segelken  
Fluid-sampling device.....C. A. Brown  
Fly killer.....L. Allis et al.  
Fly killer.....E. L. Grimes et al.  
Flying machines.....H. M. Cooley  
Folding box.....W. F. Ware  
Folding chair.....W. H. Parry  
Folding cup.....E. W. Frenz  
Folding machine.....R. Burn  
Folding-machine frame.....C. A. Sigafos  
Food compound.....H. C. Stiefel  
Freight-handling device.....E. W. Taylor  
Fruit picker.....H. A. Schumann  
Gauge-glass fitting.....E. W. Roberts  
Game apparatus.....J. B. Fortnam  
Garment hook.....T. J. Browning  
Gas burner, Oil.....S. M. Abbott  
Gas engine.....E. P. Dawson  
Gas, Manufacturing.....M. W. Murray  
Gases, Means for separating mixed.....W. T. Hoofnagle  
Gases, Separating mixed liquefied.....A. C. Morrison  
Gaseous liquids, Closure for receptacles for fermenting.....H. Wennersten  
Gear, Driving and steering.....F. B. Heitman  
Gearing, Sprocket.....G. M. Webster  
Glass-cutter, Circular.....L. C. Moore  
Glassware-making apparatus.....L. W. Proeger  
Governor for gas engines driving alternators in parallel.....H. Lemp  
Grain and hay loader.....A. B. Melhouse et al.  
Grapple.....C. W. Drake  
Grapple or tongs.....G. S. Westfield  
Grinding apparatus, Apparatus for applying abrasives to.....H. K. Hitchcock  
Grinding apparatus, Applying abrasives to.....H. K. Hitchcock  
Grinding-machine attachment.....C. E. Howe  
Guano distributor.....H. D. Pate  
Gun-firing mechanism, Automatic.....J. Steinocher  
Gun, Magazine.....N. B. Randall  
Gun, Recoil-operated.....N. B. Randall  
Handcuff.....G. A. Wood  
Handle strap for carrying books, &c.....H. M. Sprague  
Harness attachment.....C. H. Noyes  
Harpoon.....N. Kromann  
Harrow, Rotary.....U. O. Downey  
Harvesting and husking machine, Corn.....A. P. Gubrud  
Harvesting-machine-reel support.....J. F. Steward  
Hat-body-forming machines, Automatic feeding and weighing attachment for.....L. Hafemann  
Hat fastener.....J. F. Zetka  
Hat frame.....W. B. Foster  
Head gate, Irrigating.....J. H. Cope  
Headlight, Electric.....M. A. Ross  
Headwear.....A. McDermott  
Heater.....N. H. Lines  
Heating system.....C. G. Armstrong



- Oil burner ..... R. H. Copley  
 Oil burner ..... I. L. Greathouse  
 Oil burner ..... E. C. Finch  
 Oil, Refining crude cotton seed (4 pats.)... J. C. Chisholm  
 Opium alkaloids, Preparation of ..... K. F. M. Schaerges  
 Ore roaster ..... G. A. Stanton  
 Ore separator, Hydraulic ..... T. O'Boyle et al.  
 Outlet-box support ..... C. C. Buckels  
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 Packing, Plastic ..... F. A. Dailey  
 Padlock ..... F. Soley  
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 Paper cups, Machine for making folded... S. J. C. Luttrupp  
 Paper-folding machine ..... C. A. Sigafos  
 Pea cutter, Cow ..... W. H. Parks  
 Pearls, Device for mounting artificial... G. Brunet et al.  
 Pen, Fountain ..... G. W. Heath  
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 Pharmaceutical compounds ..... W. Hiemenz et al.  
 Photographic-printing frame ..... F. L. Herreshoff  
 Piano action ..... L. N. Soper  
 Piano actions, Extension bracket for... F. C. Billings  
 Piano players, Tempo controller for... E. T. Turney  
 Pianos, Tone-softening mechanism for... W. A. Kupp  
 Picket-forming machine ..... J. W. Suedeker  
 Picture holder ..... A. M. Davison  
 Pin clutch or guard ..... T. Sokolowski  
 Pin tongue ..... G. E. Munson  
 Pipe hanger ..... A. Sidoli  
 Pipe support ..... A. Kehm  
 Pipe-threading tool ..... B. Borden  
 Pipes, burners, &c., Attachment for gas... B. L. Bond et al.  
 Pipes, Cushioning device for liquid-conveying ..... T. J. Fox  
 Plow ..... W. Sobey  
 Plow, Gang ..... M. Sklovisky  
 Plow lift, Gang (2 pats.) ..... J. Froelich  
 Pneumatic cleaner ..... J. Kubosch  
 Police-signal-code box ..... W. E. Fastnacht  
 Power-transmission apparatus ..... E. W. Moore  
 Power-transmission mechanism ..... D. Nettenstrom  
 Precious metals, Apparatus for collecting (2 pats.) ..... L. B. Gray  
 Precious metals from their ores, Extracting ..... S. Williams  
 Printing attachment for planing machines ..... C. H. Heider  
 Printing mechanism for ticket issuing and auditing machines ..... J. F. Ohmer  
 Printing press ..... W. H. Smith  
 Printing-press attachment, Cylinder... P. S. Nielsen  
 Printing-press bed-plate adjustment ..... J. Cottle  
 Propeller steering ..... J. C. Christiansen  
 Propelling mechanism, Catamaran ..... M. Phillips  
 Pump ..... H. J. and W. E. Pollack  
 Pump, Bicycle ..... E. B. Wright  
 Pump, Reversible spiral ..... T. O'Connor  
 Pumping-apparatus attachment ..... H. L. and M. N. Biggs  
 Pumping system, Self-controlled ..... A. C. Durdin, Jr.  
 Punch for limiting transfer privileges... H. H. Hummel  
 Punching machine ..... E. J. Birkett  
 Quilling machine ..... G. Sipp et al.  
 Radiators, &c., Support for ..... A. Kehm  
 Rafter reckoner ..... W. E. Norman  
 Rail chair, Guard ..... P. W. Moore  
 Rail connection ..... G. Fussell  
 Rail, Guard ..... E. N. Strom  
 Rail joint ..... W. H. Moore  
 Rail joint ..... J. A. Lofstrom  
 Rail joint ..... N. J. Goyette  
 Rail joint ..... C. R. Gray  
 Railway danger signal, Automatic ..... H. A. Osborn  
 Railway rail ..... C. H. Olson  
 Railway safety apparatus, Street ..... C. J. McKenzie  
 Railway signaling apparatus, Electric... W. J. Cook  
 Railway switch ..... E. N. Strom  
 Railway switch ..... H. V. Melick  
 Railway switch, Street ..... R. B. Woodall  
 Railway tie and rail fastening, Combined... T. P. Horgner  
 Railway tie, Metal ..... W. H. Higgins  
 Railway tie, Metallic ..... C. F. Mobley  
 Rat trap, Electric ..... B. F. Ash  
 Razor ..... G. D. De Lorenzo  
 Reach-rod support ..... A. W. Woodroff  
 Receptacle, Collapsible ..... P. A. Biddinger  
 Receptacle or container, Portable ..... B. Nadeau  
 Recording mechanism ..... G. Wilson  
 Rectifier compound ..... N. Fallek  
 Reel ..... W. H. Rowe et al.  
 Reflector-supporting bracket, P. M. Hotchkin  
 Refrigerator compartment ..... E. Richardson  
 Register ..... J. S. Makin et al.  
 Registering mechanism ..... C. F. Siegrist  
 Relay, Alternating current ..... J. F. D. Hoge  
 Relay system ..... E. W. Preston et al.  
 Resilient wheel ..... J. Kohler  
 Retrieving mechanism ..... J. Hollis  
 Rim, Demountable ..... A. Denis  
 Rock drill ..... N. Stanb  
 Roll-ramming apparatus ..... H. P. Macdonald  
 Rolling bin ..... A. K. Gillespie  
 Rolling mill ..... A. A. Neave  
 Rotary engine ..... J. S. Livengood  
 Rotary engine ..... F. I. L. Byler  
 Safe ..... S. W. Fish  
 Safe or vault ..... S. W. Fish  
 Safety brake ..... V. Stasch  
 Sail fastener ..... T. A. Mann  
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 Can-head automatic feeding mechanism.....P. K.  
 Cans, etc., Device for gripping.....P. K.  
 Cans in two opposite directions, Mechanism for feeding a single line of.....J. P. B.  
 Cane shaver and grass-raper, Plant.....T. L.  
 Caoutchouc substances and making same.....C. H.  
 Car-coupling.....B. H. B.  
 Car-door.....J. A. K.  
 Car-door.....C. E. B.  
 Car, Dump.....C. J. W.  
 Car-fastening.....G. H. L.  
 Car-feeding device for cages.....C. E. B.  
 Car journal-box, Railway.....J. A. H.  
 Car-mover.....L. W. M.  
 Car, Railway.....H. H. W.  
 Car street-indicator.....J. A. W.  
 Car-underframe.....C. H. H.  
 Car wheel, Mine.....J. S. S.  
 Car, Log-bunk for railway.....G. L. H.  
 Carbonating device, Liquid.....H. H. V.  
 Carbureter.....W. J. C.  
 Cash-register.....S. B. T.  
 Casting apparatus, Metal.....G. A. H.  
 Castings, Finishing.....A. R. and S. F. W.  
 Cataloguing chart.....R. H. W.  
 Center-indicating device.....J. G. A.  
 Chain.....J. I. C.  
 Chain.....C. A. P.  
 Chair.....F. C. H.  
 Chair-drying kiln.....R. S. K.  
 Check overflow-fitting.....E. D. C.  
 Chopping-machine.....L. J. M.  
 Churn.....W. P. S.  
 Circuit-breaker, Automatic.....E. A. F.  
 Circuit-controller.....N. M. H.  
 Clamp.....L. B. C.  
 Clamping appliance.....C. B. D.  
 Clothes-line support.....P. T. K.  
 Clothes-pin.....D. C. P.  
 Clothes-washer.....C. B. E.  
 Clutch.....J. Z.  
 Clutch transmission mechanism, Positive.....E. L. G.  
 Coal-separator.....S. T. P.  
 Coaster-brake for bicycles, motor cycles, or the like.....M. J. W.  
 Coffee-extract tablets, Making.....G. V.  
 Combining-machine.....F. B.  
 Concrete-block machine, Making.....H. H. P.  
 Concrete floors and ceilings, Construction of armored.....F. C.  
 Concrete-pipe making and laying machine.....G. S.  
 Concrete retaining wall, Before.....H. D. W.  
 Condensing apparatus, Steam.....R. D. T.  
 Controller, Automatic.....S. P. A.  
 Controlling mechanism.....A. L. R.  
 Controlling mechanism.....A. E. R.  
 Cooker.....V. V. B.  
 Cooking-vessel-draining utensil.....F. D. B.  
 Core-bar.....E. H. P.  
 Cork-puller.....R. B. G.  
 Corset, Apparel.....D. K.  
 Cotton-blocker.....J. A. S.  
 Crushing-machine.....J. E. S.  
 Cultivating-machine.....W. C. K.  
 Cultivator attachment.....J. L. B.

(Continued in July Number)

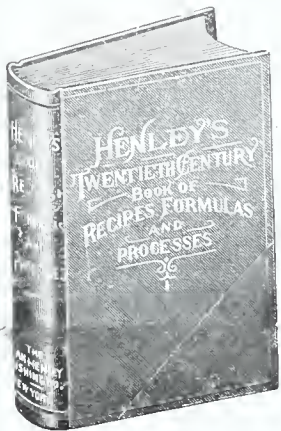


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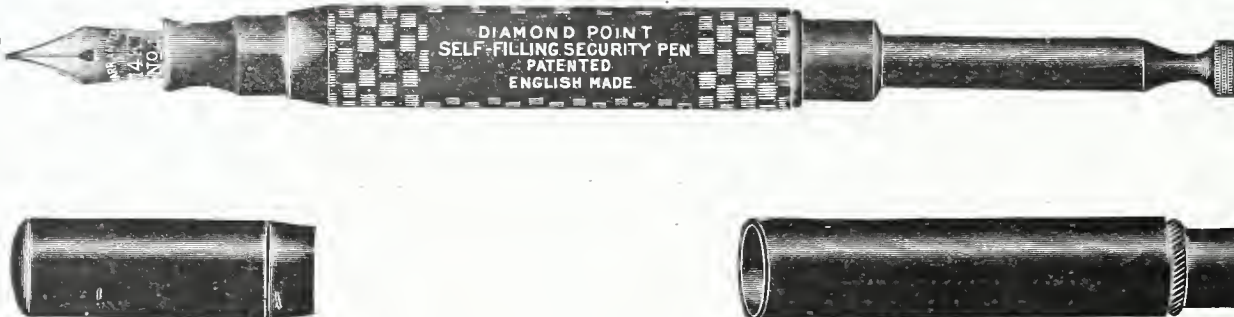
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## RIPENING DATES BY INCUBATION.

By FRANK C. PERKINS.

A FRUITING DATE PALM of the Young Deglet Noor variety, in the Salt River Valley, Arizona, is seen in the accompanying illustration. This palm will ripen about 150 pounds of dates and is about six years old. The photographs, Figs. 2 and 3, show the experimental apparatus for testing ripening dates by incubation, and the ripened dates packed for shipment. The writer is indebted to George F. Freeman, Plant Breeder of the Experimental Station at Tuscon, Arizona, for the accompanying photographs and data. He states that under the stimulus of this new process of ripening, many of the farmers of Southern Arizona are planting considerable area to the date palm.

About a decade ago the United States Department of Agriculture sent a large consignment of the choicest of varieties of dates to Arizona, where they were planted and subsequently cared for by the Arizona Agricultural Experimental Station. Many of the 200 varieties of dates there growing have ripened and are of varying degrees of promise commercially. It is stated that the most valuable variety of all, however, the famous Deglet Noor, which in the Arabian language means "the date of light," has never yet ripened satisfactorily in this climate, because the summers though hot are not long enough for the ripening process to become complete. The science and art of ripening the fruits has therefore been a subject of study by different members of the staff of the Arizona Experiment Station for years past. Dr. A. T. Vinson found that the ripening process was due to the action of certain ferments called enzymes, which while the fruit is still unripe are locked up in the cell contents of the growing dates. When the cells mature naturally, however, or are killed by heat, chemicals or other means, the enzymes are released and become active, forming those substances which contribute to the flavor, aroma,

and appearance of ripe dates.

In this way hot water, vinegar, gasoline and a score or more of other substances were found to ripen dates artificially. Of these substances vine-

gar or acetic acid was found best suited for practical work, and by its proper use perfect commercial products were produced from many varieties. Nature, however, often pre-

fers the simplest means to accomplish her most perfect results, and it remained for Prof. G. F. Freeman, by exposing the partly ripened Deglet Noor dates from the orchard to just the right degree of heat and moisture in an incubator, to turn out dates that rival those sold on the Paris market from the African Sahara.

It is of interest to note that in this process the dates are picked when they show the first signs of natural ripening. After being washed they are placed in an oven where they are kept in a moist atmosphere at a temperature between 45 and 50 degrees C. for about three days. By this time they have become fully ripened, are moist, partially shrunken and very sweet. The same process is used in treating dates which have been allowed to remain too long on the palm, becoming dry and withered, except that they are soaked in water for six hours before going to the oven. When ripe the dates are packed in attractive little boxes, lined with wax paper having a lace border. The whole package is then wrapped in white moire paper and tied with a ribbon after the fashion of candy boxes. These packages whether open or closed make an attractive exhibit and serve as an appropriate covering for the luscious fruit which they contain, and on the whole make a product which is appreciated and readily accepted by the trade at prices which will yield 30 to 50 cents a pound for the dates.

It is maintained that experimental shipments have shown that dates ripened and packed as above described will reach the following widely scattered points in first class condition: Seattle, Washington; Fargo, N. Dakota; Chicago, Ill.; New York, N. Y.; Washington, D. C.; and Paris, France. All of the recipients of these packages were highly pleased and many expressed the opinion that the quality exceeded that of the best imported product with which they were



FIG. 1—YOUNG DEGLET NOOR DATE PALM IN SALT RIVER VALLEY, ARIZONA.



acquainted. There is no doubt that dates artificially ripened and packed in Arizona will have a commercial range including all of North America.

It may be stated that aside from the above noted experimental shipment, the bulk of the crop was sold on a limited market for the purpose of learning whether the initial ready sales were due to the novelty of the product or whether these dates were of such quality as would produce a steady and consistent trade in one locality. Results so far have been gratifying, and when considered in connection with the wide range of market which the shipping qualities of these dates make possible, they indicate that there is little danger of over production in the limited area of Southern Arizona and California in which this fruit may be grown.

Of course only the finest dates go into the confectionary boxes. Those which are a little less desirable are pressed into bricks and wrapped in stout tissue paper. Experimental sales show that the trade will take these block dates at 25 cents a pound in preference to the imported bulk date at 20 cents. Moreover, clerks in grocery stores where both kinds are sold will push the block dates rather than the imported bulk dates, for the reason that sales can be made without soiling the hands.

It is held that another reason for the better sale of the pressed dates in small neat packages, is that in addition to the fact of more sanitary packing and handling than can be claimed for the imported product, their cleanly appearance of itself is not without weight in the mind of the customer. On the strength of the evidence above outlined, it may be stated that the choicest of the old world dates may be grown and satisfactorily ripened in Arizona.

Because of the fact that date palms thrive on alkali land incapable of producing other crops, Prof. Freeman foresees a great future for the industry now that a method of ripening the fruit inexpensively has been found. It has been proved, he states, by the date orchard at the experimental farm, that the Deglet Noor palm will produce 250 pounds to the palm, with the palms planted 20 to the acre. This with a yield of even 200 pounds to the palm, will make a yield per acre of 10,000 pounds.

He figures that as a commercial proposition the grower will realize 10 cents per pound from the dates, and that the middleman who ripens and packs them will sell them for 20 cents a pound. At that rate the grower will make \$1,000 per acre gross profit.

When the Deglet Noor is fully mature but not yet beginning to ripen, the seed is hard, the skin is firm and the external layers of the flesh are opaque. At this time the color is light orange yellow with a strong blush of reddish orange on the sunny side. The first sign of ripening is shown by a slight translucence of the flesh just below the skin. As this increases and progresses toward the center of the date, the fruit begins to soften and wrinkle; and it loses volume with its loss of moisture in ripening. In the early,

naturally ripened varieties, the skin is, for the most part, rather thick and brittle and as the date shrinks it becomes separated from the flesh, dries out and cracks. These cracks offer access to predaceous insects and are ideal receptacles for catching and holding the moisture of occasional showers, thus hastening the souring and decay of the fruit

until a point is reached where both the protoplasm of the date and the enzyme which brings about ripening are destroyed. This temperature is stated by Vinson to be about 75 degrees C. Mr. Freeman finds that even about 65 degrees C. is too high to get a good quality of date. Ripening at a temperature of 45-48 degrees C. finishes the process in three or four days and

exude and render the fruit sticky and disagreeable to handle.

Continued exposure to a lower temperature seems to have much the same effect as exposure to a higher degree for a short time. Thus dates over-ripened (dark colored and opaque) after exposure for five or six days to a temperature of 45 degrees C. have much the same appearance as dates ripened for three days at 52-55 degrees C. The greener the date, the lower the temperature at which the ripening process must start. When mature dates, which show none of the translucent appearance of the beginning of the ripening process, are set immediately in an oven having a temperature of 48-51 degrees C. most of them soon darken and instead of ripening into soft, juicy dates, turn into a tough, insipid product with a dull grayish appearance and leathery texture.

Prof. Freeman says: "When these dates are first set in a moist chamber (which, however, must contain no free water) at 38-40 degrees C. for three or four days, a considerable portion of them will begin to ripen and show the normal translucence and softening. When this occurs, those that are beginning to ripen may be transferred to the higher temperature and promptly finished into a good quality of fruit. I was unable to start more than half of these green dates by this preliminary sub-temperature incubation on account of the moulds which seemed inevitably to take possession of the fruit in the ripening trays at the end of five days. Such dates, therefore, as showed no sign of ripening at the end of four days, were considered worthless. It would be interesting here to know just what stage of maturity marks the dividing line between the dates that would and would not ripen. Does it depend upon the amount of invertible sugar present or upon the appearance of the inverting enzyme? After the date is well along toward ripeness, high temperatures are not so harmful except to darken the color and make the date stick on the outside. After the date is ripe the temperature may be raised until the date is candied. These candied date, however, lose some of the characteristic date flavor and are therefore disliked by most people. While high temperatures and over-ripening darken the product and candy the dates, they also increase the keeping qualities. The very plump, light colored and juicy date that we have at the completion of the ripening process is attractive in appearance and delightful to the palate, but many of these, if packed as such, will sour. It is best, therefore, to continue the ripening until the fruit is distinctly shrunken and the juice forms too strong a solution for the growth of yeast and bacteria."

If the ripening is continued until the dates are thus sugar-cured they will keep indefinitely, provided they are kept in tight boxes in a dry room. Another and by no means unimportant effect of the temperature upon the dates which are ripened by this method is the destruction of insect eggs. Dates of the Arechti and Deglet Noor varieties which had naturally ripened

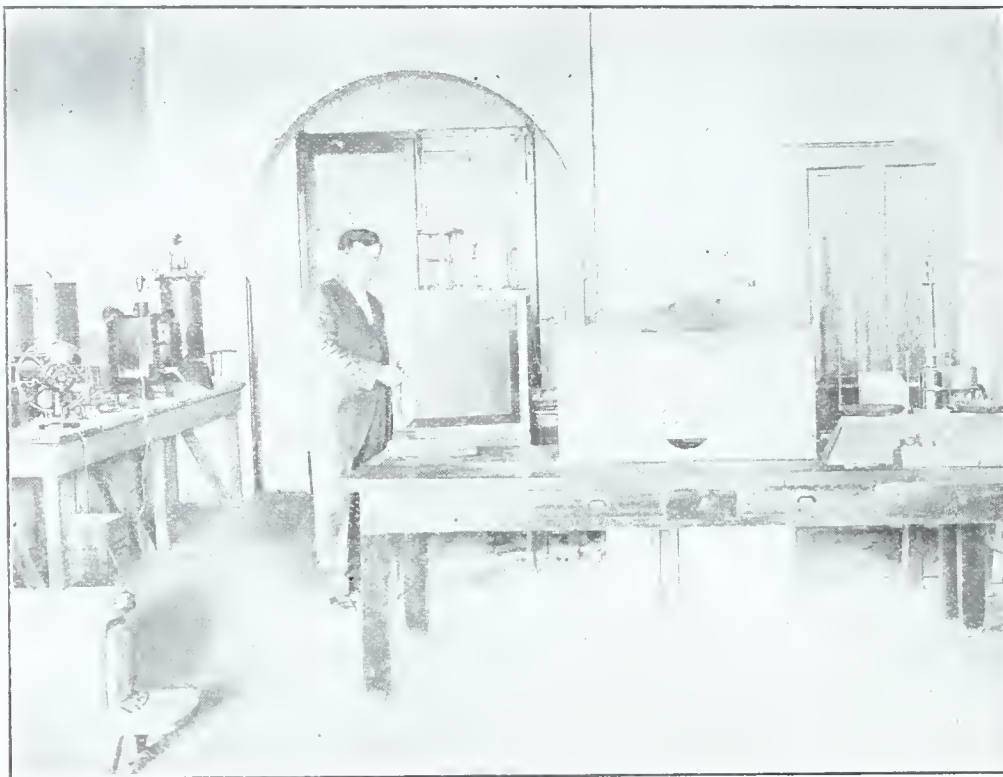


FIG. 2.—APPARATUS FOR TESTING INCUBATION IN RIPENING DATES.

The experimental results obtained at the University of Arizona are interesting. In the subsequent work, the dates were first graded into three classes and only those belonging to the second class chosen for experiment. Larger quantities of more uniform quality were now used and some excellent products obtained. Experiments were also begun in varying the factors of moisture and temperature

seems to give the best fruit. Ripened at a lower temperature, a longer time is required and much fruit is liable to sour. At temperature above 46 degrees C. there seems to be little danger of souring during the ripening process.

It is said that the temperature used also affects the color of the finished product. The higher the temperature the darker the product. Naturally



FIG. 3.—DATES RIPENED BY INCUBATION.

in order to determine the conditions limiting the successful ripening of this class of dates, and also the amounts of heat and moisture required to produce the highest possible quality of product and the least possible waste.

The effects of temperature are very marked. The rapidity of ripening increases with a rise in temperature

ripened Deglet Noors are of the translucent golden color. In artificial ripening this is changed to a translucent mahogany. This reaches its highest perfection in dates ripened at 44-45 degrees C. At about 50 degrees the dates become deep mahogany, lose their translucency and are much less attractive. These high temperatures also cause the syrupy juice to



on the trees were carefully selected with respect to quality and freedom from insects and were packed, Sept., 1910, in tightly covered tin boxes lined with oiled paper. The boxes were then securely wrapped in oiled paper with a final wrapping of two layers of ordinary paper.

When the boxes were opened, about December 15, practically every date was found to be infested with one or more worms. There is no possible chance that these worms could have entered the boxes subsequently to wrapping, so they must have hatched from eggs laid on the dates before they were packed. Wherever naturally ripened Arizona dates have been packed and put on the market this same complaint has occurred. Wormy dates have therefore been a rather serious handicap to the commercial development of our date industry.

With the artificially ripened product, however, this difficulty is at once and completely overcome, for all insects and their eggs seem to succumb to the continuous moist heat of the ripening pans.

The ovens and ripening pans used are of interest. The oven was of zinc and had a double wall to prevent loss of heat. It was large enough to receive eighteen ripening pans holding about five pounds each. Two other ovens were used, carrying about twenty-five pounds each. The total capacity of the plant was therefore about one hundred and fifty pounds. Flat graniteware pudding pans of five to eight pounds capacity were found most satisfactory.

The influence of moisture is most important. The dates, after sorting, are washed to remove the dust and dirt which inevitably collect upon them. They are then drained thoroughly before being put into ripening pans. From poorly drained dates water is liable to collect in the bottom of the pans and cause contact of the skin, and souring or stickiness of the finished product. Unless the dates are already shrunken, five or six hours' contact with free water will cause the skin to break on many of the fruits.

It is held that in a commercial plant it would probably be best to dry the washed dates for a few hours on wire drying racks in an oven. The temperature should be about 40 degrees C., with free air circulation. When there is no moisture left on the exterior of the dates they are ready for the ripening pans.

It is advisable to place cloths or low wire screen racks in the bottoms of the ripening pans in order to absorb, or raise the dates above, any syrup that may drip from the fruits.

It is said that the soft or translucent dates lose about ten per cent of weight in ripening. This loss is water, and the bulk of the date decreases coincidentally with a decided shrivelling of the skin. The ripening pans are at first left open (usually twenty-four to thirty-six hours) until the skin begins to wrinkle perceptibly. The covers should then be fitted on tightly so that the remainder of the process of ripening may take place in a saturated atmosphere. When the covers are removed too soon, souring is more likely to occur. An additional danger is that the dates may ripen into exceedingly soft and juicy fruit. If packed in this condition such fruit will not keep.

As the date begins to shrivel in the early part of the ripening process, the skin will continue to cling to the flesh. This keeps the skin soft and tender and results in a finished product, which is all shrunken but still translucent and clean (not sticky) fruit. It is an important consideration in the production of a fancy confection date that it may be eaten from the hand without soiling the fingers.

As the ripening process continues the date should be observed from time to time. If the flesh becomes tight brown and hard instead of softening and coloring to a translucent mahogany, the date is too dry to ripen and must be soaked in water for a few hours. Sometimes when a pan of dates begins to lag in the ripening process on account of becoming too dry, the fruit may be freshened up by removing the cover and lightly sprinkling the upper layers. Care, however, should be exercised not to add so much water that it will run down through the dates and collect at the bottom of the pan, as this is liable to cause souring or stickiness.

The chemical study of this process is of special interest. The artificially ripened Deglet Noor date is decidedly a different product from that which naturally ripens on the tree. The former is an invert sugar date, while the latter, as has long been recognized, contains principally cane sugar.

The University of Arizona is to be congratulated on the work done by its agricultural experiment station in developing this new process of ripening dates by incubation.

#### Treating Jewels by Electricity.

Various methods for removing flaws from precious stones, altering their color, etc. by means of electricity have been discovered. The flaws are removed from rubies by packing in reduced iron and igniting. The color of carnelian and pink topaz is due to high temperatures. The making of onyx from chalcedony is interesting. Chalcedony is formed of layers of colorless silica of different degrees of porosity. They are soaked in honey and water at a carefully regulated temperature and then placed in sulphuric acid which chars the sugar in the pores, the carbon thus deposited producing a black stone which after treatment with oil assumes great brilliancy. Red color is produced by soaking in a solution of ferrous sulphate and igniting, and blue is produced by copper sulphate and ammonia.

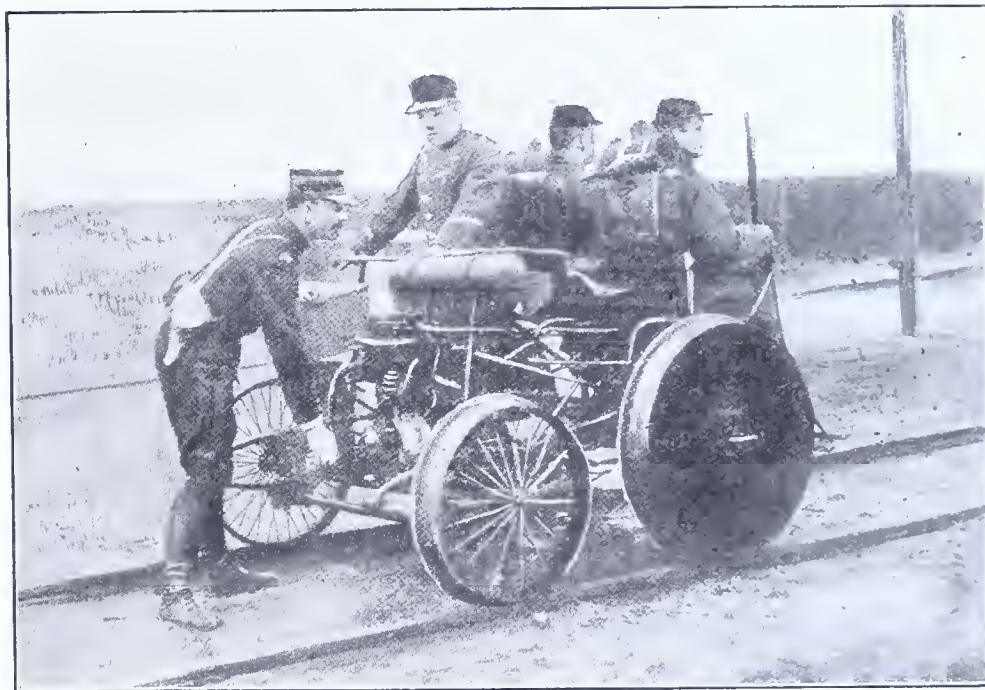
It has been found that it is possible to decolorize certain gems by means of high temperatures, and subsequently restore their color by the use of radium. With the amethyst it was found that the color was due to a minute quantity of manganese. Heating the stone reduces the manganese and the color disappears. The action of radium consists in re-oxidizing the manganese, which restores the color. A week's exposure to the radium was necessary to effect the restoration. A like change occurs in plain glass, which assumes a deep violet hue when exposed a long time to the action of radium, and which may be decolorized by heat. These discoveries may open a new line of investigation.

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#### MILITARY VELOCIPED.

The tricycles used by railway workers for quick transport from one point to another along the track, and which replace the old-time hand cars, are familiar sights in this country. The same idea is used abroad for the military service, which plays a much more important part in the life of European peoples than with us. The accompanying illustration shows one of the vehicles used in France for the purpose of conveying a small party of soldiers for emergency work. As will be seen, it can carry four persons, and it has a speed of about twenty-five miles per hour. It has four wheels, and is adapted for the rapid transportation of sappers or of workmen who wish to repair destroyed railway tracks. The construction is relatively light, and it can be readily removed from the track, and if need be, carried by hand. Propelled by four pairs of legs, it rapidly attains a good velocity. The machine shown in the illustration is being tested on a railway line between Saint Cyr and Poissy.

just as it has in all other human occupations, and the country that will win will be the one best equipped in this respect, the most ready to adopt improvements, to take advantage of mechanical progress. War is being drawn into the field of exact sciences. The change is marked primarily by the steady advance in range and efficiency of the rifle and the field gun, especially the former. It is developing from a clumsy implement, that any clown may learn to use in half a day, toward a very intricate mechanism, easily put out of order, but of the most extraordinary possibilities in the hands of men of courage and intelligence. Its precision at long range will make the business of its care, loading and aim subsidiary to the far more intricate matter of its use in relation to the contour of the ground within its reach. Even its elaboration as an instrument is probably incomplete. One can conceive it provided in the future with cross thread telescopic sights, the focusing of which, corrected by some ingenious use of hygro-



This machine is interesting not only in itself, but also as representing an advance in the art of warfare. In a recent book that has attracted considerable attention, H. G. Wells predicts, among other radical changes in the social fabric of the future, a revolution in the method of fighting. Science today, he says, stands offering the soldier vague, vast possibilities of mechanism, and so far he has accepted practically nothing but the rifle. She offers the soldier transport that he does not use, intrenching devices, road making devices, flying scouts, portable foods, security from disease, a thousand ways of organizing the horrible uncertainties of war. But the soldier still insists on regarding these appliances as mere accessories, and untrustworthy ones at that, to the time-honored practice of his art. The army is organized on the lines of the once fundamental distinction of the horse and foot epoch,—the officers with their class traditions, and the men, regarded as mere sources of mechanical force. Machinery will take its place in the wars of the future,

scopical material, might even find the range, and so enable it to be used with assurance up to a mile or more.

The use of railways in war is another point made by the writer. After fifty years of railways, he notes, there still does not exist in a world a large part of which gives too much attention to military affairs, a skilled and organized body of men, specially prepared to seize, repair, reconstruct, work and fight such an important element in the new social machinery as a railway system. Is this business in the next war to be hastily intrusted to some haphazard incapables drafted from one or the other of the two prehistoric arms? The new soldier will be trained to do many things that are now considered negligible. The state that does not incorporate into its fighting organization all its able bodied manhood and all its material substance, its roads, vehicles, engines, foundries, and all its resources of food and clothing; the state which at the outbreak of war has to bargain with railway and shipping companies, haggle against alien interests for every sort of supply, will be, he predicts, at an overwhelming disadvantage against a state which has emerged from such social confusion, and organized every element in its being for the coming struggle.

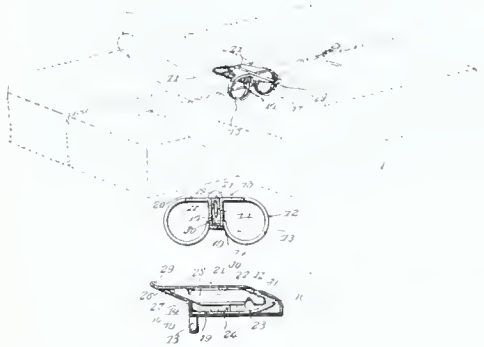


## CLEVER NEW PATENTS.

Twine Holder.—Sanitary Shaving Cup.—Ax.—Stair Rod.

### Twine Cutter.

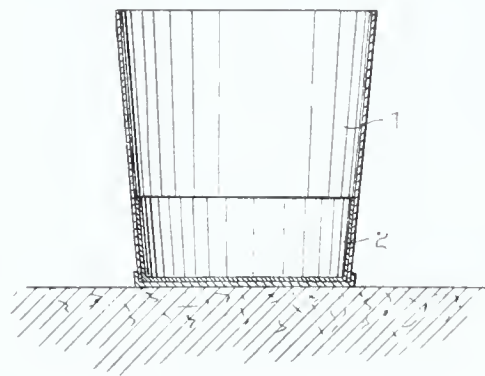
Many have been the attempts to supply a simple and practical twine cutter, but very few are seen in common use, hands being the tool universally employed to break the string in stores and other places where parcels are constantly wrapped. A little device intended to lie in the palm, and so arranged that an end of the twine with which the packages has been wrapped will be cut while at the same time the fingers are left free, has been invented by Floyd B. Stober, of Byers, Colo. The implement is made of stamped metal, and consists of finger grips 13, as seen in the drawing, arranged to fit the fingers of the operator. The main portion of the device is bent to form a casing 14, an extension forming a hold for a flat spring 19. The inner ends of the grips are enlarged to form guard plates 20, the same being curved so that the grips can be adjusted to the fingers. A blade holder 21 is formed of a blank so that the ears 23 form a head 24 for arranging a blade in the holder, this blank having extensions which form securing members to hold an end of the blade to the holder. When the blank is bent to form the holder, the enlarged part is bent up to form a guide plate 29. The blade has several



cutting edges, and a notch at each end. When the blade is mounted in the holder, a pin 32 extends through the head and one of the notches, securing one end of the blade in the holder, but allowing it to swing on the pin 32, the other end of the blade being held in engagement by the securing members 27. The spring 19 is secured to the casing and its free end engages the head 24 and exerts a downward pressure on the holder and retains the same in the casing. The blade is arranged to be reversed when the cutting edge becomes worn. In operation the twine is passed beneath the guide plate, thus exerting an upward pressure on the blade holder and operating it against the spring so that when the twine passes over the guard plates it will engage the blade and be cut. The spring will then return the blade and holder within the casing.

### Sanitary Shaving Cup.

Sanitary drinking cups, from being the exception, have become the rule, and now the hygienic advance of the world is including the shaving cup. Edwin O. Blanchard, of Randolph, Vt., is the inventor of a mug in which the soap for forming a lather forms part of the vessel, or to be more definite, a cup the walls of which, as well as the bottom, are coated with soap. The cup, an illustration of which is given herewith, is formed preferably of paraffin paper, such as is used in the manufacture of drinking cups. The inner face of the walls near the bottom and the bottom are coated with a layer of soap, which is applied by any of the well known processes employed for this purpose.

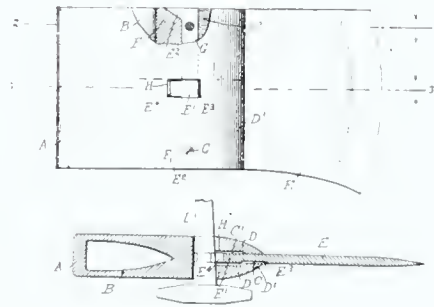


When it is desired to use the cup, a small quantity of water is drawn into it, and the same is worked around the bottom with the brush, thus quickly forming a lather. After one has finished shaving, the cup may be thrown away, or, if desired, reserved for another use. The possibility of disposing of it after it has been employed once makes it sanitary in every respect, and it is doubtless only a question of time before receptacles holding these cups, and operated by a penny-in-the-slot device, will be provided on Pullman cars and in railway stations for the benefit of travelers.

### Ax.

An arrangement for easily replacing a broken bit with a new one, and for holding the bit firmly on the ax head, has often been desired by woodsmen. An invention by Alois F. Kopriva, of Stony Brook, N. Y. seems to answer the purpose most satisfactorily. The ax head is provided with a socket for the handle and with a groove for the back of the bit, these latter being connected so as to hold the bit firmly. As will be seen in the cuts, the groove forms jaws  $D D^1$  between which passes the back of the bit which is removably held in position on the head. The inner part of the groove is widened, and the back of the bit is thicker than the outer part of the groove to allow the bit to slide up and down without being moved outwardly. The back of the bit has beveled lugs  $E^2$  adapted to be seated on seats at the back of the

groove, so that the bit is centered in the head and held against up and down movement. One face of the bit has a vertical groove  $E^3$  registered with the jaw  $D^1$  when the bit is pulled out far enough for the beveled lugs to clear the seats  $F$ , to allow of moving the bit out of engagement with the head. In order to place the bit in position, the bit is moved from the top down or from the bottom up, with the groove in register with one of the jaws. When the bit is flush with the head, it is moved in to engage the lugs

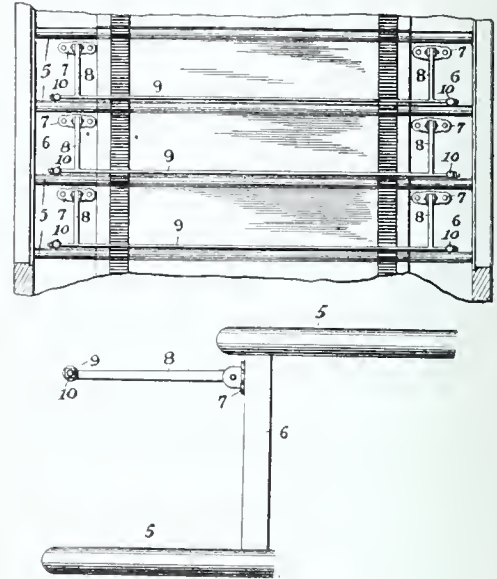


$E^2$  with the seats  $F$  to center the bit and hold it firmly. It is now screwed in place. The back  $E^1$  has a lug  $E^4$  which extends into an opening on the head when the bit is in position, leaving enough space to permit the insertion of a wedge for forcing the bit out far enough to permit the lugs to clear the seats. It will be seen that the bit can be readily placed in position on the ax head and securely fastened thereon, and by the use of the lugs the bit is centered and held against up and down movement.

### Stair Rod.

A device for fastening carpets on stairs which will admit of the removal of the carpet for purposes of sweeping, and allow of its easy readjustment, and at the same time is adapted to clamp the carpet in place without tacking, and to hold it smooth so that persons will not slip on it, has been patented by Hugh J. Sharpe, of Lansford, Pa. As shown in the cut, a stair rod is mounted on the riser of each step, the base plate 7 of the rod being of any desired shape. The plates

have hinged thereto swinging arms 8, the free ends being secured to a clamp 9, the ends of the same being made ball-shape, for ornamental effect. By this device the carpet is held to the steps, the arms 8 being engaged by means of leaf springs coming from the plates 7, these springs sustaining the arms against swinging movement



when the rods are either raised to free the carpet or lowered to fasten it to the steps. As seen in the smaller cut, the carpet may be easily drawn from under the clamp 9 when it is desired to clean it, and then placed back in position. It is also evident that that portion of the carpet which covers the tread of the step may be drawn upward between the arms 8 and then supported upon the bar 9. This permits access to be gained to the step for cleaning purposes.

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## LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

### UTICA DROP FORGE & TOOL CO. v. C. E. BONNER MFG. CO.

(Circuit Court of Appeals, Seventh Circuit. Oct. 2, 1912. 201 F. R. p. 924.)

#### PATENTS—INVENTION—STAPLE PULLER.

The Russell patent No. 545,537 for a staple puller held void for lack of invention, in view of the prior art.

### ROSE MFG. CO. v. E. A. WHITEHOUSE MFG. CO. et al.

(District Court, D. New Jersey. Jan. 6, 1913. 201 F. R. p. 926.)

#### 1. PATENTS—VALIDITY AND INFRINGEMENT—LAMP BRACKET.

The Rosenbluth patent, No. 883,973, for a lamp bracket, designed for use on automobiles or other vehicles, comprising a base by which it may be attached to the vehicle and two arms, one of which carries a number plate or license panel and the other a lamp by which the plate may be illuminated, is void for lack of invention in view of the prior art; also held not infringed, if conceded validity.

#### 2. PATENTS—VALIDITY AND INVENTION—LAMP BRACKET.

The Hughes patent, 962,220, for a lamp bracket for vehicles, held void for lack of invention, in view of the prior art.

#### 3. PATENTS—DESIGNS—VALIDITY.

It is essential to the validity of a design patent that it should disclose invention, and also, under Rev. St. § 4929 (U. S. Comp. St. 1901, p. 3398), as amended by Act May 9, 1912, c. 783, § 32 Stat. 193 (U. S. Comp. St. Supp. 1911, p. 1437), that the design be ornamental as well as new and original.

#### 4. PATENTS—VALIDITY—DESIGNS FOR VEHICLE NUMBER PLATE SUPPORTS.

The Rosenbluth design patents, No. 41,388 and No. 41,389, for designs for vehicle number plate supports, are void, for the reasons that the articles shown are mechanical and functional, and not ornamental.

### ROSE MFG. CO. v. COX BRASS MFG. CO.

(District Court, S. D. New York. Jan. 21, 1913. 201 F. R. p. 930.)

#### PATENTS—INFRINGEMENT—LAMP BRACKET.

The Rosenbluth patent, No. 883,073, for a lamp bracket for use on automobiles, having arms to support a license panel and a lamp for illuminating the same, conceding that it discloses invention, must be strictly construed in view of the prior devices of similar nature and limited to the precise construction shown. As so construed, held not infringed.

### UNION TANK LINE CO. v. AMERICAN CAR & FOUNDRY CO.

(District Court, S. D. New York. Jan. 28, 1913. 202 F. R. p. 592.)

#### 1. PATENTS—"INFRINGEMENT"—USE OF PARTS OF DEVICE.

To constitute "infringement," it is unnecessary to use the entire device; but if parts thereof are used in substantially the same way, and in a similar contrivance, it is infringement.

#### 2. PATENTS—VALIDITY AND INFRINGEMENT—TANK CAR.

The Van Dyke patent, No. 768,888, for a railroad tank car, in which the tank is secured to the underframe in the middle only, to allow for free expansion longitudinally, was not anticipated and discloses invention; also held infringed.

### AMERICAN THERMOS BOTTLE CO. v. AMERICAN EVER-READY CO.

(District Court, S. D. New York. July 6, 1910. 202 F. R. p. 508.)

#### PATENTS—INVENTION—DOUBLE-WALLED VESSELS.

The Burger patent, No. 872,795, for double-walled vessels, construed, and held void for lack of invention, as embodying only a change in a prior device from one material to another, which was also old in the art.

### STAFFORD CO. v. COLDWELL-GILDARD CO. et al.

(Circuit Court of Appeals, First Circuit. Jan. 30, 1913. 202 F. R. p. 744.)

#### 1. PATENTS—REISSUES—AUTHORITY TO GRANT.

To authorize a reissue patent under Rev. St. § 4916 (U. S. Comp. St. 1901, p. 3393), there must be clear proof that the error which renders the original patent inoperative or invalid arose by "inadvertence, accident or mistake," and that the party asking for relief acquires no more than he was originally entitled to; and what is called for by the words "same invention" in the statute cannot be gathered from mere inferences or suggestions with reference to what the patentee might or might not have conceived.

#### 2. PATENTS—VALIDITY OF REISSUE—STOP-MOTION FOR LOOMS.

The Coldwell & Gildard reissue patent, No. 11,923 (original No. 637,234), for a warp stop-motion for looms, in which claims 19 to 30 inclusive are new, is void as to claim 19 and all subsequent claims which are substantially broader than claim 23 as not for the same invention disclosed in the original patent.

### EMERSON & NORRIS CO. v. SIMPSON BROS. CORPORATION.

#### SAME v. STRUCTURAL CEMENT STONE CO.

(Circuit Court of Appeals, First Circuit. Jan. 30, 1913. 202 F. R. p. 747.)

#### 1. PATENTS—ANTICIPATION—SUFFICIENCY OF PROOF.

The rule applied that to sustain the defense of anticipation in a patent case, by a prior use by another, where there has been a considerable lapse of time, something more than oral testimony is ordinarily required to establish the identity of structure as between what is patented and what is alleged to have anticipated it.

#### 1. PATENTS—VALIDITY AND INFRINGEMENT—PROCESS OF MAKING ARTIFICIAL STONE.

The Stevens patent, No. 624,563, for a process of making artificial stone by the use of a mold of relatively dry sand which absorbs the surplus moisture from the stone compound, held, on the evidence, not anticipated, valid, and infringed.

### OEHRING et al. v. WILLIAM GARDAM & SON.

(Circuit Court of Appeals, Second Circuit. Jan. 13, 1913. On Petition for Rehearing, Jan. 24, 1913. On Rehearing, Feb. 10, 1913. 202 F. R. p. 753.)

#### PATENTS—VALIDITY AND INFRINGEMENT—MULTIPLE DRILL.

The Oehring patent, No. 560,171, for a multiple drill, consisting of a machine by which a plurality of holes arranged at regular or irregular intervals and extending to various depths may be simultaneously drilled, claim 1, was not anticipated, and discloses patentable invention, in that the bracket supports for the drill carrying spindles are "independently adjustable in all directions," a combination not found in the prior art. Claim 3 also held valid, and both said claims infringed.

### HORSEY v. CONSUMERS' AUTO SUPPLY CO. et al.

(Circuit Court of Appeals, Third Circuit. Feb. 4, 1913. 202 F. R. p. 756.)

#### PATENTS—PRIOR USE—PATCH FOR RUBBER TIRES.

The Tingley patent, No. 787,010, for a patch for rubber tires, is void for prior use of the device by others.

### METAL STAMPING CO. v. GERHAB.

(Circuit Court of Appeals, Third Circuit. Feb. 4, 1913. 202 F. R. p. 757.)

#### PATENTS—INFRINGEMENT—THRILL COUPLING

The Worrest patent, No. 662,050, for a thrill coupling, must be confined to the narrow limits of the precise device disclosed, which includes a flat curved spring as a part of the mechanism for automatically taking up the wear of the bolt coupling. As so construed, the patent is not infringed by the device of the Bradley patent, No. 888,767.

### WESTINGHOUSE ELECTRIC & MFG. CO. v. SUTTER et al.

(District Court, S. D. New York. April 13, 1912. 202 F. R. p. 760.)

#### PATENTS—VALIDITY—DESIGN FOR BATHTUB SEAT.

The Robertson design patent, No. 29,993, for a design for a bathtub seat, when com-

pared with the structures of the prior art, does not disclose the exercise of patentable invention, and is also void because the alterations did not result in giving the article any distinctively attractive appearance which is essential to the validity of a design patent.

### UNITED STATES LIGHT & HEATING CO. v. SAFETY CAR HEATING & LIGHTING CO.

(Circuit Court of Appeals, Seventh Circuit. Oct. 1, 1912. On Petition for Rehearing, Jan. 8, 1913. 202 F. R. p. 915.)

#### 1. PATENTS—VALIDITY AND INFRINGEMENT—BRUSH MECHANISM FOR DYNAMOS.

The Bliss patent, No. 707,754, for a brush mechanism for dynamos, claim 6, which is a broad claim, is void for anticipation in the prior art. Also held not infringed, if conceded validity after the filing of disclaimer in October, 1912.

On Petition for Rehearing.

#### 2. PATENTS—SUIT FOR INFRINGEMENT—REVIEW OF APPELLATE COURT—EFFECT OF DISCLAIMER

A Circuit Court of Appeals, which had adjudged a claim of a patent invalid, may grant relief to the complainant by authorizing the enforcement of any equities arising out of a disclaimer filed before the issuance of its mandate, intended to avoid the ground of invalidity found.

### GREVER v. UNITED STATES HOFFMAN CO. et al.

UNITED STATES HOFFMAN CO. et al. v. LASANCE.

(Circuit Court of Appeals, Sixth Circuit. Feb. 14, 1913. 202 F. R. p. 923.)

#### 1. PATENTS—INVENTION—NEW RESULT.

Where a transposition of parts, accompanied by some adaptation, gets a new co-action and a new result, it may be invention.

#### 2. PATENTS—INVENTION—EXTENT OF USE.

Where there has been extensive use, and defendant has copied, patentee is entitled to the benefit of the doubt on question of utility of his change.



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### 3. PATENTS—INFRINGEMENT—CONSTRUCTION OF CLAIMS.

Where a patent was granted on the contention and argument of the applicant that his device was distinguished from a prior reference in a certain particular, he cannot insist that such feature is material to establish infringement.

### 4. PATENTS—VALIDITY AND INFRINGEMENT—CLOTHES-PRESSING MACHINE.

The Hoffman patent, No. 928,319, for a clothes-pressing apparatus, was anticipated and discloses invention; also, held infringed by one machine and not infringed by another.

### FAULTLESS RUBBER CO. v. STAR RUBBER CO.

(Circuit Court of Appeals, Sixth Circuit. Feb. 14, 1913. 202 F. R. p. 937.)

#### 1. PATENTS—VALIDITY AND INFRINGEMENT—NURSING NIPPLE.

The Miller patent, No. 926,011, for a nipple for nursing bottles, claim 1, while vague in some of its terms, held not anticipated, and to disclose patentable invention construed in the light of the specification and drawings: also infringed.

#### 2. PATENTS—CONSTRUCTION OF CLAIM.

In determining whether the language of a claim is too vague, the inquiry must be whether, taking into account the specification and approved aids to interpretation, it is reasonably possible to determine what the claim does or does not cover.

#### 3. PATENTS—VALIDITY.

A patent should not be held invalid only because its language may be too vague for application to some possible future case.

### KNIGHT v. RIEGER et al.

(District Court, D. Maryland. February 21, 1913. 203 F. R. p. 49.)

#### PATENTS—INVENTION—MAUSOLEUM.

The Knight patent, No. 979,965, for a mausoleum having improved means of ventilation and drainage, is void for lack of invention, in view of the prior art.



## MECHANICAL INVENTIONS

Patents for which have been procured through the Patent Soliciting Office of E. G. Siggers, Patent Lawyer, Washington, D. C.

Burr Struble, Jr., Portland, Ore. **Dentimeter.**—This invention relates to a dentimeter adapted for use by dentists in measuring the exact circumference of a tooth to determine the size of a crown. The principal object of the invention is the production of an instrument equipped with means for holding a strip of measuring wire or other material in a looped position, and having a cutting device adapted to be retracted when the measuring material is being stretched around the tooth, whereby when the measuring material is drawn tightly around the tooth, the cutting device may be operated to sever the said material at the crossing point thereof, and thus obtain a piece of wire the exact circumference of the tooth. The device comprises a tubular casing, a sleeve slidable on the casing and having means for the attachment of the ends of a measuring wire, means at the outer end of the casing for the passage and guiding of the wire, a plunger rod carrying a cutter in juxtaposition to the guiding means, a spring for actuating the rod, and a trigger for holding the rod in a retracted position.

Robert H. Thompson, Jr., Portland, Ore. **Bottle Faucet or Tap.**—The aim of the present invention is to provide a device designed for use on bottles containing champagne, carbonated mineral water and other beverages or liquids under pressure, for controlling the discharge of the contents of such bottles, and adapted to permit the bottles to remain in an inverted position and to enable the contents of the same to be drawn off as required without leakage or waste. Another object of the invention is to enable the bottle tap or faucet to be readily passed through the stopper of a bottle, and to provide means for ejecting from its bore or passage particles of cork or any other substance which may find lodgment in the same. The device includes a hollow tapered tube having a lateral opening and provided with a solid inner end of gimlet form, said tapered tube being provided at the outer portion beyond the lateral opening with a spiral flange forming a thread, a valve for controlling the flow of liquid through the tube, and a reciprocable rod mounted within the tube and extending from the opening to a point adjacent the valve and arranged in the path of and adapted to be actuated by the valve for cleaning the said opening.

Charles S. Waybright, Staunton, Va. **Churn.**—The object of the invention of this patent is to provide an easily operated light running churn, in which it will be unnecessary to detach any of the parts of the operating mechanism when it is desired to remove the dasher and the churn body. Another object of the invention is to enable the dasher to be readily adjusted to arrange it at the proper elevation for churning and also for gathering the butter after the operation of churning has been completed. The churn includes a supporting frame provided with spaced upper and lower horizontal bearing arms having vertically aligned bearing openings, a vertically adjustable shaft having a longitudinal bore and arranged in the bearing openings, said shaft being provided at its inner end with a combined head and handle and having an outwardly extending supporting flange

arranged at the upper face of the upper horizontal arm, a reciprocatory rod or bow guided in the frame, a cord spirally wound around the vertical shaft and connected with the rod or bow, an operating lever for reciprocating the latter, and a dasher having a stem extending into the lower end of the vertical shaft and adjustably and detachably secured to the same, said shaft having a limited vertical movement to permit the stem of the dasher to be removed from its bore without detaching the cord.

Alexander W. Woodley, Blalock, Ala. **Combination Clinker Bar and Fire Rake.**—This patent covers a combination clinker bar and fire rake, and the object of the invention is to provide a readily adjustable tool, which while primarily designed for use in connection with furnaces, may be advantageously employed for various other purposes. The device comprises a shaft provided at one end with a slot, a tool having a tang pivotally mounted in the slot, a sleeve arranged on the shaft to cover and hold the tang in position when the same lies longitudinally within the slot, projecting prongs carried by the tool head and extending in the same direction as and projecting beyond the tang, said prongs being normally positioned along the sides of the sleeve, and means for securing the sleeve and the shaft against relative movement to hold the tool head and prongs in position at right angles to the shaft, whereby said prongs will be in an operative position.

Ollie Weeks, Rapid City, S. D. **Portable Clothes Receptacle.**—The portable clothes receptacle of this patent is designed primarily for use in laundry work to enable clothes to be handled and hung on a line with great ease and without any unnecessary work. It is also an object of the invention to provide a portable clothes receptacle adapted to enable clothes to be readily gathered from the line, and capable also of being arranged adjacent to an ironing board so as to receive the garments as they are ironed. The device includes a supporting frame comprising upper and lower side bars, and front and rear standards supporting the upper side bars and provided at their lower ends with curved springs connecting the standards to the lower bars, front and rear axles connecting the lower side bars and adapted to receive wheels, transverse supporting bars connecting the upper side bars and forming a depressed seat for the receptacle, and resilient clamping means extending across the frame and arranged to engage and embrace the ends of the receptacle to retain the same on the seat. The portable clothes receptacle will facilitate the collection and delivery of the laundry, and the clothes basket may be removed to enable a box or other receptacle to be substituted therefor so that the device may be used for carrying various other articles.

Thomas C. Ware, Tishomingo, Okla. **Seal Holder.**—This invention has reference to seal holders, and more especially the hinged structures for the same, and its object is to provide a device of minute size but little larger than the seal itself, and so arranged as to be readily carried in a watch pocket. The device comprises two co-acting hinged members provided with aligned holes having the outer ends counterbored, a pivot pin lodged in the holes and forming a pintle, and an incomplete sustaining ring exterior to the said hinged members and having

its ends entering the counterbores and retaining the pivot pin from accidental displacement.

Yancy M. Westmoreland, Greensboro, N. C. **Automatic Fire Alarm.**—This patent covers a fire alarm adapted to be readily applied to the rooms or apartments of a house or other building, and capable in the event of a fire in any portion of a house, of immediately sounding an alarm and of indicating the particular room or apartment in which the fire is located before the same has gained material headway, whereby fires may be extinguished with comparatively little loss. The device comprises an alarm having a trigger, a vertical series of tubes extending upwardly from the trigger and spaced apart at their adjacent ends and provided at their upper ends with funnels, a plurality of balls adapted to drop through the tubes for operating the trigger to sound the alarm, and means for suspending the balls above the funnels, said means including an open support, an inflammable cord extending across the support and composed of a plurality of strands separated at the support, inflammable material held between the separated strands of cord, and a plurality of fuses extending from the inflammable material and secured to the open support.

Richard B. H. Leighton, Chattanooga, Tenn., and Victor W. Zilen, Richmond Hill, N. Y. **Car Coupling.**—It is the aim of this invention to provide an automatic car coupling adapted to meet the present requirements of the Master Car Builders Association, and equipped with a lock set to enable it to be arranged in position for automatic coupling. Another object of the invention is to enable the knuckle locking mechanism of the car coupling to be readily connected with an operating device located at either the top or right hand side of a freight car, or the left hand side of a passenger coach. The car coupling includes a draw head, a pivoted knuckle, a locking pin movable upwardly and downwardly to engage and release the knuckle, and a fixed lock set arranged to support the locking pin in an elevated position. The draw head is provided at one side of the locking pin with a vertical passage, and it has transverse passages extending from opposite sides of the locking pin and located below the plane of the bottom of the draw head, and the means for connecting the locking pin with the operating device is adapted to be arranged in any one of the said passages.

Thomas Lynch, Jefferson, Iowa. **Hitching Strap.**—This patent covers a device adapted to be readily applied to the end of a rope or strap and easily transferred from one rope to another, and capable of effecting an economy in the length of rope or strap required to make a loop and at the same time form a loop which will not draw tight or bind, which is the case with the ordinary rope loop. The device comprises a clamp, a hitching rope having one end secured to the clamp, the free portion of the hitching rope projecting from one end of the clamp and bent back upon itself over the clamp and along the back thereof to form a loop, and a locking ring pivotally mounted contiguous to the other or free end of the clamp, said hitching rope passing through the locking ring and the pivotal point of the ring being further from the back of the clamp than from the end, whereby the ring is caused to engage the rope when in a position over the back and will afford a free

passage for the rope when the ring is swung to a position over the end of the clamp.

Edwin S. Beck, Duncannon, Pa. **Combined Check and Stop Valve.**—It is the aim of the present invention to provide a check valve capable of reversal to arrange either end of the valve at the pressure side to permit water, or other fluid to flow in either direction, and adapted also to operate as a stop valve or cock. Another object of the invention is to equip the valve with means for permitting a liquid under pressure to be cut off for enabling the check valve, the valve seat and the spring for actuating the valve to be removed and repaired or replaced by a new part without breaking any of the pipe connections. The valve includes a valve casing having opposite openings or passages, a rotary cutoff sleeve mounted within the valve casing and provided with opposite openings to register with the openings of the casing, said sleeve being adapted to be rotated to close the openings of the valve casing, a valve plug mounted for rotary movement within the cut off sleeve and provided with opposite openings and having a valve seat, and a transversely disposed check valve carried by the valve plug and cooperating with the valve seat thereof and adapted to be reversed by the rotary movement of the valve plug.

Charles E. Berry, Somerville, Mass. **Adjustable Chock.**—The object of the present invention is to provide for hawser ropes, cables, tow lines and the like an adjustable chock adapted to be readily arranged to form an open or closed chock, and capable of permitting a rope or cable to slide freely through it in either of its adjustments. A further object of the invention is to provide a chock adapted when closed to effectually prevent a rope or cable from accidentally springing out of engagement with it, and capable when in such closed position of enabling a boat to be securely tied to a wharf or other fixed object located above the plane of the deck to which the chock is secured. The adjustable chock comprises in its construction a base plate provided with a fixed projecting jaw extending upwardly and inwardly over the base plate, an adjustable jaw slidably mounted on the base plate and extending upwardly and inwardly towards the fixed jaw, and a catch carried by the adjustable jaw and arranged to engage the base plate for locking the adjustable jaw.

William S. Hamm, Bonanza, Ark. **Cotton Picking Sack.**—This invention has for its object to equip cotton picking sacks with a flexible protector adapted to increase the life of a cotton picker's bag or sack, and capable also of excluding dirt and mud from the same as the sack is drawn over the ground by a cotton picker. It is also the aim of the invention to provide a protector of this character adapted to permit the sack to be arranged in any position to suit the convenience of the picker, and capable of remaining on the sack when the same is not in use and of being folded or rolled up with the sack without detaching it therefrom. The device consists of a flexible waterproof protector arranged beneath the sack and being of a size slightly in excess of the rear portion of the same, a transverse row of fastening devices for securing the front of the protector to the sack, and a flap carried by the sack and extending rearwardly at a point in advance of the protector and covering and housing the front end of the same and the said fastening means.



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**FOR SALE**—U. S. Patent No. 1,052,941, dated Feb. 11, 1913. A tool especially designed for valve spring on gasoline engine. Waiting to sell to the most reasonable bidder. For particulars address, C. Nyberg, Huntington, Long Island, N. Y. aug

**FOR SALE**—U. S. Patent No. 1,051,777, dated Jan. 28, 1913. Tube Swage. Has been thoroughly tested by Henry Endahl, Master Mechanic, of Oliver Iron Mining Co., in their shops at Coleraine, Minn. The steam hammer operator has swaged 125 tubes in one hour. Address, Albert J. St. Mars, Gold Butte, Montana. aug

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## QUICK ALLOWANCES.

We have recently had our attention called to a circular issued by a firm of patent attorneys which has been practicing scarcely two years, in which an effort is made to convey the impression of their wonderful facilities for obtaining the quick allowance of an application for patent. The circular was headed "A Few of the Quick Allowances," and was followed by the names of the inventors, their addresses, the titles of the inventions, the filing dates of the applications, and the dates when the applications were allowed. The dates of the patents were missing, so that it was impossible for any one to investigate the Patent Office records to ascertain if the facts stated in the circular were correct. Whether this omission of the patent dates was intentional or not, we have no information. The neglect of the circular to state the essential facts prevented any inquisitive person from searching through the Patent Office records for the purpose of ascertaining how accurate these might be.

The circular was evidently prepared for the purpose of influencing inventors to place their business in the hands of the attorneys in question, these naturally thinking that by informing inventors how "quick" they were in obtaining the grant of patents, they might induce people to trust their applications to them. They may delude a certain class of inventors, but the one who has had experience, and knows the difference between a poor patent and a good one, would never be influenced by the receipt of such a circular. On the contrary, he would be more apt to look upon the bait of a "quick allowance" as something to be avoided.

We can understand why an inventor should want his patent allowed as quickly as possible, and every effort should be made by both the attorney and the Patent Office to facilitate the grant of patents, but there is something more important to the inventor's interests than the early grant of his application. Railroading a case through the Patent Office is the last thing that an inventor should wish done. "Haste makes waste" is an old maxim, and hurrying an application through the Patent Office in 99 times out of a 100 spells the ruin of the inventor's interests.

Perhaps inventors do not understand that it is to the interest of an unscrupulous attorney to obtain the "quick allowance" of an application for patent. It means less work for him. It is very easy to prepare the specification and claims of an application for patent, and instead of inserting a number of broad claims to protect the interests of the inventor, simply to put in a single narrow carefully-drawn claim, so narrow indeed that it cannot help going through the Patent Office without the citation of a reference. What is the result? Just as soon as the Examiner in the Patent Office reaches the application in its turn, he looks at the claim, sees how limited it is, glances through his class, finds that he has no patent that will anticipate it, and allows the application to go out. It is none of the Examiner's business to point out that the claim is too restricted. It is not his concern that the attorney has presented so limited a claim that the patent is practically worthless. It is a part of the Examiner's duty to examine and pass upon the application as presented, and whether that application is presented with broad claims or limited claims, is a matter of no interest to the Examiner, except that in an application having a broad claim there is likely to be work for him to do.

Or, take another instance. Suppose the attorney presents with the application some broad claims and some limited claims, and the Examiner in the Patent Office acting upon the application gives notice of the allowance of the limited claims and rejects the broad claims; and suppose the attorney without considering the reasons and references advanced by the Examiner and without giving any thought to varying the broad claims so as to have them escape the references cited, proceeds to cancel the rejected claims, causing the application to be allowed at once. Here, again, the attorney in his desire to save himself work, has been derelict in his duty to his client and has obtained the "quick allowance" of the application at the sacrifice of the inventor's interests.

Our experience with patents is that the quick allowance of an application is a matter of suspicion rather than of commendation. In other words, an attorney who boasts how quickly he obtains the grant of a patent should be watched, for he is securing the grant without due regard to the inventor's interests. It is impossible to obtain "quick allow-

ances" without sacrificing something. The attorney does not sacrifice anything belonging to himself, but in order to build up a reputation for "quick allowances" he is willing to sacrifice his client's interests.

Hundreds of instances may be cited to prove that the delayed allowance of an application for patent is more apt to be helpful to the inventor's interests than its "quick allowance." One instance will suffice for the present. Selden, the patentee of the well known patent relating to automobiles, kept his case pending in the Patent Office for fourteen years. When the application was first filed, it contained a comparatively narrow claim. By prosecuting the application from year to year the inventor kept the application alive, and all the while watched the development of the automobile, saw how it was being modified, and with each modification he varied his claims so as to cover the changes. He did not introduce any new matter; he could not do that under the law and practice, but he modified his specification and redrew his claims so that when the patent finally issued fourteen years after the application was filed, it contained claims of such scope that every automobile infringed the patent. What was the result? His patent laid the foundation for the corporation which was formed, known as the Association of Automobile Manufacturers, and for years Selden collected tribute from every manufacturer of automobiles in the country. Litigation followed, but the final decision of the courts was postponed as long as possible. Though the patent was subsequently declared of limited scope, the purpose of the patentee was achieved. He became a millionaire through the issuance of his patent. Suppose he had been actuated by the desire for a "quick allowance," would his patent ever have been heard from? Not at all! It would have been one of the many automobile patents of the early art, and would be cited and looked upon as a curiosity and nothing else.

The moral is that the inventor should beware of the attorney whose only recommendation is "quick allowances."

## THE LATEST SUPREME COURT DECISION.

Upon the delivery of the opinion of the Supreme Court in the *Henry v. Dick* case, the newspapers took it up, and there was much discussion as to the soundness of the doctrine. Many thought that steps should be taken to amend the patent laws to limit the monopoly granted by the patent. As a step in this direction a bill was introduced in the last session of Congress to codify and revise the patent laws, and, as Representative Oldfield of Arkansas was the chairman of the House Committee on Patents, the bill became known as the Oldfield bill. Public hearings were held, as is customary when new legislation is proposed and interest is marked, but the bill was never reported favorably to the

House. It would seem from the latest decision of the Supreme Court, in what is known as the *O'Donnell* case, that the Oldfield bill as presented is no longer necessary.

The main provisions of the Oldfield bill, against which opposition was centered, were the following:

First, the establishment of a compulsory license system.

Second, extinction of the right of the owner of a patent to treat license violations as infringements.

Third, amendment of the Sherman anti-trust law as applied to those doing business under the protection of patents.

It was thought that the incorporation of these provisions in the patent laws would seriously affect the value of patents, inasmuch as they would tend to restrict the monopoly of the patent grant.

It is understood that this bill, or a similar bill, will be introduced in to the next Congress, and an effort made to pass the same. We are inclined to think though that after the latest decision of the Supreme Court has been digested, and its effect on patents fully considered, it will be found that there is no real necessity for wholesale revision of the patent laws.

The Supreme Court in this decision limits the right of the owner of the patent to control the price of the patented article so far as *his own vendee* is concerned. The patentee having once sold the patented article and passed complete title to the purchaser, who has complied with the stipulations and conditions of his contract, the court held that the rights under the patent franchise terminate, and that the articles from that time on become the absolute property of any purchaser or dealer, and may be resold as seen fit. In other words, when the patented article passes from the owner of a patent, or his immediate vendee, into the hands of a third party, who is not a party to the original contract or sale, then the article is free from any limitations under the patent franchise.

This is in accordance with the opinion which has been expressed by many patent lawyers during the discussion of the merits of the Oldfield bill in the last Congress, and, to the extent indicated, the decision will undoubtedly be of great value in preventing abuses and unlawful extensions of the patent franchise, which practices have done much to influence public opinion against the patent system.

The decision may therefore be welcomed as completely removing all reason for the further advocacy of amendments of the patent statutes along the lines provided for in the Oldfield bill. Taken in connection with the earlier decision of the Supreme Court in the *Dick* mimeograph case, and the so-called bath-tub case, it is thought that the latest decision has served to clear up the heretofore disputed questions of rights under the patent franchise. The rights of both the owners of patented properties and the public have become clearly and wisely defined, so that the patent law may operate to accomplish the purposes for which it was intended; namely, the stimulation of invention



and the development of the arts and sciences. The law being now so well understood, and the rights under it so clearly defined, it would seem to be most unwise to change the statute and thus open up an entirely new field of uncertainty, which would require years of litigation to reach a like satisfactory and fair settlement.

#### Windows of Marble and Shell.

The latest novelty in decoration is the use of marble for windows. This valuable stone has long been employed for adorning floors and walls, but its use for windows has never been anticipated. It has been found that it can be cut into sheets so thin that they are transparent, and allow light to pass as it would through stained glass. It is said that marbles which naturally possess little transparency are best adapted for this purpose, for when they are cut into the desired thickness (from two-hundredths to eight thousandths of an inch) they transmit a soft light and give the most beautiful effects of color. Marbles of various colors are now being combined into lovely mosaics for this purpose.

Another beautiful effect is obtained by the use of sea shells instead of glass for window panes. This is common in the Philippines, and the effect of tropical sunlight filtering through the translucent medium is said to be exquisite. Manila alone uses about five million shells each year for windows. The largest shells square three inches, and tests show them to be stronger than glass.

#### Valveless Pump.

A vacuum pump has recently been constructed which has three claims to being a scientific and mechanical wonder, says *Popular Mechanics*. It is built without any piston or valves, and has a free open inlet and a free open exhaust passage; and its principle is one of abstract ideas which are not usually associated with a mechanical device.

In its simplest form it is only one cylinder revolving within another cylinder. The outer one has one opening as an inlet and one as an outlet, and there is a slot on the inside of this cylinder, running from the inlet entrance to the outlet. In operation, the inner cylinder is revolved at high speed, and sucks air in through the inlet, forces it along the little slot, and out through the exhaust passage.

The principle upon which it operates is that molecules of the air normally move among themselves at an enormous speed, and that if they could be forced along at a higher speed in the cylinder, they would all be thrown out. As a matter of fact this high speed cannot be attained in one cylinder, but by using three cylinders, connected up in series, the high speed is attained. In this pump the inner cylinders revolve at rates of from six to twelve thousand revolutions a minute.

The best ordinary type of vacuum pump will draw air out to within 1-76,000,000 of its original contents, but this pump has succeeded in drawing it

out to within 13,800,000,000 of the original amount. The possible applications of this pump to commercial uses are many, one being the making of the vacuum in incandescent light bulbs and thermos bottles.

#### Frozen Gas.

A new method of extracting gasoline from natural gas has been discovered. It applies the principle of refrigeration, and is used in connection with the gas that escapes from oil wells, and which has hitherto gone to waste. It has been found that by freezing the gas, a new and valuable product is obtained. The machine used for this purpose resembles an ice making apparatus. The gas flows by its own pressure from a capped well, through a series of containers ranging from 15 degrees below zero, F. to a temperature very much lower. In various containers, each with different degrees of cold, gasoline is precipitated according to percentages of gravity, and at the lowest temperature rhigolene is obtained. This has a boiling point of 256 degrees below zero, and naturally possesses great refrigeration powers. After the refrigerating plant has been operated long enough to secure rhigolene, this is employed to continue the process of refrigeration. It has unusual illuminating qualities, and two and a half gallons can be extracted from one thousand feet of gas. It is estimated that a billion cubic feet of natural gas is wasted every day in the oil fields of the world. This is about equal in power production to a million bushels of coal. The discovery of a method of utilizing it is important.

#### Testing Pavements.

A new machine for testing the wearing qualities of various paving materials, and known as a "paving determinator" has been recently demonstrated in Detroit with remarkable success. The machine is described in a recent number of a technical journal which says that it has been designed to reproduce, as nearly as possible, the actual effect of traffic to which a pavement may be subjected. It consists of an upright steel post having a large gear near its lower end for revolving the shafts upon which is fastened the testing apparatus. This is composed of double interchangeable wheels, weighing 1400 pounds, at each end of the horizontal shafts, which are so constructed that the outside wheels or disks may be removed and disks corresponding to the widths of different wagon tires substituted when desired.

One of the most remarkable features of the paving determinator is its ability to faithfully reproduce the effect of a shod horse. This is effected by five plungers connected to the horizontal shaft between the two wheels, each plunger having attached to its outer end a plate shaped like the bottom of a horse's hoof. Each plate has fastened to its surface four steel points, similar to the calks worn by horses on their shoes during cold weather. When the apparatus is put in operation, a cam, geared to the horizontal shaft between the two wheels, causes the hoof-shaped plate to strike the paving at a pressure of

about 150 pounds, as the wheels travel around the circular pathway. This striking action is instantly followed by a movement that reproduces the ankle motion of a walking horse, the effect of which is said to be exactly similar to the wear occasioned by shod horses. By a special arrangement the wheels, as they travel, are caused to move back and forth upon the shaft, thus thoroughly testing a given width of paving surface. The determinator is operated by a 6 horsepower engine, and speeds varying at the wheels from three to twelve miles per hour may be developed.

#### Two-Story Elevators.

To properly serve the twenty and thirty story building that are common in our great cities, two story elevators are now being constructed. Two cages are rigidly connected, with floors the same distance apart as those of the upper stories of the building. The cages thus stop level with any two adjacent floors. Starting and stopping is controlled by the operator of the lower cage, and an automatic device makes it impossible for him to start the cars until an attendant in the upper cage has released the mechanism. On the main floor, the cages load at landings which are reached by a short flight of stairs. Signs direct travelers to the proper landings. It is believed that this arrangement will increase the efficiency of the service, as owing to the increase in the number of stops and the consequent shortening of the time required for the trip, the double elevator has a capacity of two to four times greater than the single car. In case of panic, the building can be emptied in less than half the time now required.

#### New Type of Pump.

A pump recently installed for lifting water into the new three-billion gallon reservoir which serves London, operates by the explosion of a mixture of gas and air directly against a volume of water. Five explosion pumps do the work, four of them discharging 40,000 gallons of water per minute each, and the other 20,000 gallons.

This remarkable pump, which is described in *Popular Mechanics*, was invented by an Englishman who was interested in the various uses to which gas engines could be put. "Here is a piston removing water indirectly by the force of gas explosions," he said to himself. "Why should not the gas explosions directly remove the water?" The engine consists of two main parts—the combustion chamber and the play pipe. The water in the play pipe performs all the functions of the piston, fly wheel and crank of the ordinary gas engine. A mixture of air and gas is pumped by a small compressor into the space above the water in the combustion chamber and the charge is fired by an electric spark. The explosion drives the water along the play pipe, some of it rising in the conical tower and some passing through the delivery pipe into the reservoir. The momentum is sufficient to cause the water level in the combustion chamber to fall, a partial vacuum is created, more water enters

through the inlet valves, and at the same time air is drawn into the combustion chamber through the so-called scavenging valves. The water in the conical tower, having come to rest, starts to fall and drives the water in the play pipe back into the combustion chamber, this action expelling the products of combustion, greatly diluted by the scavenging air, through open exhaust valves. As the water continues to rise, these valves are shut by it, thus compressing the diluted products of combustion until the momentum is destroyed. The pressure attained is high enough to cause the water to surge back again along the play pipe, the pressure in the combustion chamber again falls below atmospheric, a charge of gas and air is drawn in, the water on its next return swing compresses the charge, this is ignited at the proper moment by the electric spark, and the process is automatically repeated. The explosions occur at the rate of about nine times a minute, and in the case of the larger pumps, about 15 tons of water is delivered each time, the flow into the reservoir from the delivery pipe being continuous and practically uniform.

#### Submarine Motor Car.

One of the drawbacks to the diver's craft has been his inability to move easily from one place to another. The elaborate and complicated diver's suit that he wears hampers his movements. A sort of sledge has been invented to assist him. It is a motor car on runners instead of wheels, and it is intended to be drawn along the bottom by a boat on the surface, to which it is connected by wire cables, and to which the operator can telephone. This car can be steered in any direction by a device operated by compressed air, which is carried in steel tanks on the sledge. It is possible to use this apparatus at a depth of 150 feet when the sun is shining. When the day is cloudy, or when it is necessary to do the work at night, a searchlight is used. The diver wears his regular suit, but carries also a tank that will supply him with fresh air for a period of three hours. Since he is no longer forced to carry such a receptacle around with him, but can rely on the aid of the motor sledge to support it, he can use a tank that will enable him to remain under water much longer than would ordinarily be possible. He can also traverse the ground much more rapidly and comfortably, as he is towed back and forth over the bottom at any depth desired, in his search for the wreckage or the bodies that he has gone down to seek. At the back of his seat is a hood of metal, to protect him against the currents formed by the motion of the vehicle through the water.

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## MECHANICAL PATENTS.

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Buoy for locating wrecks.....J. L. B. B. B.  
 Burglar alarm, Electrical.....B. T. S. S.  
 Button and fastening means therefor.....C. A. B. B.  
 Button-covering machine.....J. B. B. B.  
 Cable connector.....B. Z. B. B.  
 Cables, Forming driving blocks upon multi-  
     tiple wire.....A. B. B. B.  
 Cactus burner.....A. B. B. B.  
 Cammer.....J. B. B. B.  
 Can handle shaping machine.....P. B. B. B.  
 Can unloader.....J. B. B. B.  
 Cap crown splitter.....E. B. B. B.  
 Car construction, Railway.....W. P. B. B.  
 Car door lock, Freight.....W. H. B. B.  
 Car end structure, Railway.....W. P. B. B.  
 Car ends, Bracing structure for railway.....  
     V. E. B. B.  
 Car journal box.....J. B. B. B.  
 Car roof.....C. E. B. B.  
 Car seat.....A. B. B. B.  
 Car structure, Metal.....W. P. B. B.  
 Car ventilator, Railway.....J. E. B. B.  
 Carbonating and dispensing machine, Liquid.....  
     H. B. B. B.  
 Card feeder.....W. H. B. B.  
 Carriage, Doll.....J. B. B. B.  
 Cash registers, Registering device of.....  
     E. B. B. B.  
 Caster.....J. B. B. B.  
 Cell case machine.....A. W. B. B.  
 Cellulose from wood, wood-chips, straw,  
     recd. etc., Manufacture of.....J. E. B. B.  
 Chain.....W. J. B. B.  
 Chain.....J. C. B. B.  
 Chair fan attachment, Rocking.....S. B. B. B.  
 Chart.....N. C. B. B.  
 Chuck jaws, Gripping surface of.....  
     G. B. B. B.  
 Cigar cutter.....C. H. B. B.  
 Clamping device, Protected terminal.....  
     A. H. B. B.  
 Clasp locking device.....J. C. B. B.  
 Cleaner-roll mounting.....F. H. B. B.  
 Cloth cutter.....H. A. B. B.  
 Cloth-ornamenting machine.....  
     G. W. B. B.  
 Clothes case.....P. B. B. B.  
 Clothes line prop.....W. B. B. B.  
 Clutch (Keissner).....F. S. B. B.  
 Coat clamp.....M. S. B. B.  
 Cock operating device, Gas (Keissner).....  
     A. H. B. B.  
 Coffee pot.....J. E. B. B.  
 Coin selecting device.....F. B. B. B.  
 Collar.....M. B. B. B.  
 Collier.....C. B. B. B.  
 Comb.....V. B. B. B.  
 Combination lock.....C. B. B. B.  
 Commutator motor.....C. W. B. B.  
 Composing machine, Typographic.....  
     E. M. B. B.  
 Concrete, Chair for supporting reinforcement  
     bars in.....G. R. B. B.  
 Concrete mixer.....T. L. B. B.  
 Container.....J. A. B. B.  
 Cooking vessel, Domestic air tight.....  
     J. R. B. B.  
 Copper, Treating.....D. W. B. B.  
 Cork for bottle seals, Treating.....  
     W. W. B. B.  
 Corset.....I. B. B. B.  
 Cotton chopper.....S. B. B. B.  
 Cotton chopper.....J. W. B. B.  
 Cotton cleaning apparatus.....T. N. B. B.  
 Cotton cleaning machine.....W. D. B. B.  
 Cotton condenser.....S. D. B. B.  
 Cotton machine.....J. C. B. B.  
 Counting machine.....M. B. B. B.  
 Coupling.....J. R. B. B.  
 Coupling guard arm.....E. P. B. B.  
 Crusher roller for coal breakers, etc.....  
     E. L. B. B.  
 Cultivator.....C. A. B. B.  
 Cultivator.....W. D. B. B.  
 Cultivator.....W. I. B. B.  
 Cup dispensing device.....H. B. B. B.  
 Current deflector.....J. M. B. B.  
 Curtain and shade fixture.....A. B. B. B.  
 Curtain and shade roller supporter.....  
     C. B. B. B.  
 Curtain operating mechanism, Window.....  
     F. W. B. B.  
 Curtain pole and ring.....J. B. B. B.  
 Curtain stretcher.....M. F. B. B.  
 Curtain stretcher.....V. B. B. B.  
 Curing board.....J. A. B. B.  
 Cutting off mechanism.....B. K. B. B.  
 Cycle fork, Rear spring.....E. C. B. B.  
 Cycles, Transmission device for motor.....  
     N. B. B. B.  
 Cyclometer.....F. W. B. B.  
 Dam for irrigating ditches, Folding.....  
     W. A. B. B.  
 Dental pliers.....G. W. B. B.  
 Dental swaging block.....F. O. B. B.  
 Dock Attachment.....P. A. B. B.  
 Dial mounting.....R. B. B. B.  
 Die frame.....S. W. B. B.  
 Die stock and dies.....F. S. B. B.  
 Die thread machine, Cut back.....E. E. B. B.  
 Disk cutting machine.....S. C. B. B.  
 Disk straightening and truing apparatus.....  
     W. B. B. B.  
 Display case.....O. A. B. B.  
 Display top for receptacles.....J. W. B. B.  
 Display tray.....J. H. B. B.  
 Distance recorder for automobiles and  
     other vehicles.....O. B. B. B.  
 Doll, Multifaced.....C. B. B. B.  
 Door locking and unlocking device, Jail.....  
     G. H. B. B.  
 Doubling table.....F. W. B. B.  
 Drawing pin.....E. M. B. B.  
 Drinking cup, Sanitary.....W. H. B. B.  
 Drinking fount.....F. H. B. B.  
 Driving mechanism.....B. R. B. B.  
 Drum stand.....R. W. B. B.  
 Dynamoes, Reversible brush holder for use  
     with.....J. L. B. B.  
 Egg-turning tray for incubators.....  
     W. B. B. B.  
 Electric current rectifying method and  
     apparatus.....C. C. B. B.  
 Electric indicator.....F. J. B. B.



Ironing board.....E. A. Thibault  
 Ironing board.....E. L. Gillespie  
 Journal boxes, Automatic take-up for.....J. T. Hay  
 Journals, Safety device for preventing hot.....L. E. Marvin  
 Key fastener.....T. H. Agnew  
 Key ring holder.....H. Elder  
 Kinematographic projection apparatus by means of sunlight, Device for lighting.....S. Docetti  
 Laboratory crusher.....D. McIntosh  
 Lamp bracket.....K. Ludy  
 Lantern stand plate.....L. Smith  
 Last.....R. C. Simmons  
 Lasts, Making.....R. C. Simmons  
 Lathes, Steady rest for.....E. D. Sherrill  
 Leaching tank or filter.....H. E. Kier  
 Leather working machines, Hollow work support for.....H. A. Holder  
 Lime spreader.....J. W. Porcher  
 Line reel.....L. Toegel  
 Line spacing mechanism, Fractional.....O. C. Kayle  
 Liquid or gaseous fuel burner.....H. C. Vandaveer et al.  
 Locomotive ash pan.....W. R. McKeen, Jr. et al.  
 Locomotive cab ventilator.....W. W. Henry  
 Locomotive driving connection, Electric.....N. W. Storer  
 Logging wheel brake.....W. Caves et al.  
 Loom for weaving reticulate reinforcements.....R. M. Jones  
 Loom, Pile fabric.....J. Haggerty  
 Loom shuttle.....W. H. Wilson  
 Loom warp stop motion.....G. Hames  
 Looms, Apparatus for catching and holding the reserve thread in weft replenishing.....A. Imbach  
 Machine tools, Cross rail securing device for.....E. P. Ballard, Jr.  
 Mail bag catching and delivering apparatus.....H. Kershaw  
 Mail crane, Railway.....B. W. Mudge  
 Massage roll, Electric.....D. Tibbals  
 Measuring instrument, Electric.....M. C. Rypinski  
 Measuring instrument, High voltage.....J. B. Whitehead  
 Mechanical movement.....Z. G. Ward  
 Medical cabinet.....J. H. Lewin  
 Mercury dropper.....E. C. Ketchum  
 Metal shears.....F. M. Lathridge  
 Meters, Integrating and recording apparatus for.....F. N. Connet  
 Milk can, Heat insulated.....L. R. Steel  
 Milk testing apparatus.....A. Faltelwitz  
 Mining machine.....C. McKinnon  
 Mirror and pin, Combined.....H. G. Cobbin  
 Moistening and cutting machine, Tape (2 pats.).....J. From  
 Moisture in grain, etc., Device for indicating.....A. Zeleny  
 Mold filling machine.....S. C. Bond  
 Molding apparatus (3 pats.).....J. E. Wilcoxon  
 Mop.....E. J. Duncan  
 Mower, Lawn.....J. Chapple  
 Music roll spool.....G. H. Davis  
 Music roll spool, Adjustable.....G. H. Davis  
 Music rolls, Tempo marking device for.....F. M. Craft et al.  
 Musical demonstrating board.....F. E. Huie-Locke  
 Musical instrument controlling device, Automatic.....R. W. Gertz  
 Musical instrument playing apparatus.....W. C. Reed  
 Nethergarment.....M. W. Gillis  
 Nozzle device.....J. G. Goodhue  
 Nut lock.....P. P. Hunkle  
 Nut lock.....C. C. McClain  
 Nut lock.....L. V. Barrett  
 Octave coupler.....J. Gallazzi  
 Oil burner.....R. C. Casad  
 Oil tank safety apparatus.....J. P. Miller  
 Ore breaker.....J. E. Pharo  
 Ore classifier.....A. E. Wiggins et al.  
 Ore mill.....G. R. Thurber  
 Organs, Swell shade action for self playing.....H. G. Kinder  
 Outlet box, Self adjusting.....O. F. Dubruel  
 Oven, Upright chamber.....A. Gohmann  
 Ozonizer.....C. F. Wallace  
 Packing material.....A. S. Miller  
 Padlock.....H. Handlig  
 Pantograph apparatus.....W. C. Bucknam  
 Pantograph for automatic embroidering machines.....H. Saurer  
 Paper box machine.....F. Graffenberger  
 Paper caddy.....J. W. Weiss  
 Paper cutting machine.....N. Gray, Jr.  
 Paper holder.....S. Wheeler  
 Paper machines, Water marking apparatus for.....A. Whitton  
 Paper pulp, Electrolytic apparatus for the preparation of.....F. F. Strong  
 Pavement and making same.....A. B. Cowdry  
 Pen, Oscillating.....G. F. Thorp  
 Phonograph.....A. Schwer  
 Photographic flash lighting.....H. E. Coston  
 Photographic printing apparatus.....W. C. Huebner  
 Photographic printing machine.....D. Horsley  
 Pianissimo device.....A. Messina  
 Piano, Combination.....P. Wolf  
 Piano, Player.....S. L. Dickinson  
 Piano pneumatic attachment.....W. A. Watson  
 Picture machines, Intermittent motion for moving.....J. C. Collins  
 Picture screen, Moving.....P. E. Thomason  
 Pipe coupling.....P. R. Schuyler  
 Pipe coupling, Automatic fluid.....J. D. Scott  
 Pipe wrench.....D. S. Sebastian  
 Pipes, Silencer for exhaust.....I. M. Cottrell et al.  
 Pistol, Automatic.....J. H. Wesson  
 Plane.....J. P. Gage  
 Planters and fertilizer distributors, Hill forming mechanism for.....P. M. and C. R. Larnon  
 Plows, Pulverizing attachment for wheeled.....C. H. Dempsey

Plow, Motor disk.....J. M. Henton  
 Plug, Test.....W. J. Lennon  
 Pneumatic motor.....W. F. Cooper  
 Pocket, Safety.....M. Clarke  
 Post card, Merchandise carrying.....L. C. Witkowski  
 Potato cutting apparatus.....A. D. Welker et al.  
 Potato separator.....D. J. Edwards et al.  
 Pressure counteracting mechanism.....H. D. Bennett  
 Printing apparatus.....G. C. Thomas  
 Propelling mechanism.....F. B. Taff  
 Prune picker.....A. L. Morton  
 Pull or handle.....H. C. Shaw  
 Pulley, Friction clutch.....H. A. Holzer  
 Pump, Air.....C. M. Scott  
 Pump, Bicycle.....E. N. Garrison  
 Pump, Sand.....A. V. Steele  
 Pump, Steam.....L. K. Stevens  
 Push button, Regulated contact.....B. Urquhart  
 Radiator, Heating.....A. E. Baum et al.  
 Rail bucking apparatus.....F. M. Smith et al.  
 Rail chair.....J. R. Smith  
 Rail coupling device.....W. H. Wentz  
 Rail joint.....W. T. Lindsay  
 Rail joint.....A. C. Butler et al.  
 Rail joint.....N. Hayden  
 Rail joint.....C. H. Melvin et al.  
 Rail joint.....W. F. Baker  
 Rail joint.....L. Bennett  
 Rail joint fastening.....F. L. Morgan  
 Rail joint, Interlocking.....J. F. Barnhill  
 Railway crossing.....C. A. Alden  
 Railway rail guard and gage.....G. Komarek et al.  
 Railway rolling stock, Rail stop for.....J. H. Ball  
 Railway safety appliance.....C. A. Thorslund  
 Railway tie, J. W. Jr. and T. J. Clark et al.  
 Railway vehicle coupling.....G. Johnston  
 Railways and the like, Manufacture of track structures for.....R. A. Hadfield  
 Range.....C. M. Gentner  
 Ratchet wrench.....W. T. Sayre  
 Razor.....J. J. Williams  
 Razor frame cleaner, Safety.....H. Pombrink  
 Razor honing and stropping machine.....C. A. Mann et al.  
 Razor, Safety.....O. Kampfe  
 Razor stropping device.....C. E. Greenwood  
 Reamer.....J. Lorenz  
 Rectifier.....C. C. Ruprecht  
 Reel.....A. H. Meyer  
 Refrigerator.....A. T. Schlichting  
 Refrigerator car drip pan.....R. N. Pierpoint  
 Resawing machine.....G. M. Pelfon  
 Road machines, Scarifying attachment for.....D. C. Boyd  
 Robe support.....H. W. Oster  
 Rosin and other by-products from wood, Extracting.....W. M. Bashlin  
 Rubber heel lift.....A. A. Glidden  
 Rug.....C. B. Young  
 Sacking machine, Automatic.....A. Hornevedt  
 Sash balance, Window.....E. E. Whitmore  
 Sash, Window.....L. A. Shrader  
 Saw.....A. C. Huffschnitt  
 Saw set.....L. M. Pettit  
 Sawing machine.....J. R. Bims  
 Sawing machine.....A. J. Tenow et al.  
 Scoop, Self weighing.....P. E. Bertram  
 Scrubbing machine.....J. A. Gafney  
 Sealing machine, Rotary envelop.....J. A. Markoe  
 Semaphore arms, Device for operating.....L. E. Garnett  
 Separator.....M. Quenner  
 Sewing machine take up.....C. C. Ringo  
 Shades and lace curtains, Extension support for window.....C. Akers  
 Sheaf loader and unloader.....J. H. Hauser  
 Sheet feeding mechanism.....W. S. Amidon  
 Sheet metal straightening and cutting off machine.....F. B. Shuster  
 Sheet metal strips, Machine for cutting and mounting (Reissue).....W. Stuebing  
 Shipping box.....O. Mitchell  
 Shock absorber.....S. H. Yancey  
 Shoe cleaner.....H. H. Chambers  
 Shoe cleaning device.....S. H. Frederick  
 Shoe machine.....W. D. McClain  
 Shoes, Ladder gripping attachment for.....E. Dennis  
 Shovel attachment.....G. J. Walsh  
 Sign, Changeable.....G. F. Fetscher  
 Signal system, Supervisory.....F. W. Cole  
 Signal system, Watchman's (2 pats.).....F. W. Cole  
 Signal transmitting apparatus, Electric.....F. W. Cole  
 Signaling apparatus, Vehicle.....J. W. Tobin  
 Signaling system.....O. T. Lademan  
 Silicon carbide article and making same.....E. S. Smith et al.  
 Silo.....H. Diebel  
 Skin shaving machine.....J. S. Jacobson  
 Slate picker.....C. S. Farrer  
 Smoothing the ends of fibrous rolls, Means for.....C. Ganz  
 Soap dispensing receptacle.....S. F. Kohn  
 Sofa, Convertible.....F. L. Andren  
 Sole pressing machine.....J. W. Cosgrove et al.  
 Sole pressing machine.....H. A. Pavenport  
 Spade.....J. J. Lindell  
 Spark coil.....W. H. Cotton  
 Speedometer drive gear.....J. K. Stewart  
 Speedometer driving pinion support.....A. W. Wessolek  
 Spike.....H. O. Crippen  
 Spindle for spinning, twisting and like machines.....A. H. Morton  
 Splicing thimble.....E. E. Squire  
 Spoke extractor.....O. S. Winkler  
 Spoke for wheels, Repair.....O. Zarth  
 Spraying machine, Dust.....G. C. Johnson et al.  
 Spring hook.....E. R. Chittenden  
 Spring structure.....G. C. Shoemaker  
 Square, Roof.....P. N. Berggren  
 Stair, Counterbalanced.....C. H. Burch et al.  
 Stalk cutter.....J. N. Smiley  
 Stanchion, Cattle.....N. Logan et al.  
 Station indicator (2 pats.).....H. S. Votaw et al.

Starter, Rotary self.....E. J. Thurber  
 Stay, Garment.....S. H. Fleming  
 Steam generator.....H. V. Deemar  
 Stirrup.....N. Rupert  
 Stitch machine, Ornamental.....J. P. Weis  
 Storage battery.....W. Morrison  
 Stove structure, Fireplace.....L. E. Clawson  
 Stoves, Igniting device for gas.....B. D. Stevenson  
 Supporting bracket.....D. C. Corbitt  
 Suspender cast off (2 pats.).....E. N. Humphrey  
 Swimming suit.....S. Roth  
 Switch stand.....W. B. Cooke  
 Switch throw.....W. A. Lines  
 Syringe case, Hypodermic.....F. S. Dickinson  
 Syringe, Vaginal.....C. H. Dunster et al.  
 Tachometer, Magnetic.....F. Meyer  
 Tag holder for automobile and other vehicles, License.....D. R. McCauley  
 Talking machine needle.....R. H. Jones  
 Tap, cock, and the like having tapping means.....F. J. Story  
 Taximeter.....J. W. Jones  
 Teaching music, Chart for.....J. Wolfneck  
 Telephone exchange system.....J. N. Reynolds  
 Telephone mouthpiece, Antiseptic.....I. S. Rosenblatt  
 Temperature regulating apparatus.....J. M. Larson  
 Thermometer, Clinical.....W. M. Bevis  
 Threshing machine.....N. Beam et al.  
 Ticket holder.....J. I. McKee  
 Tire and armor therefor, Pneumatic.....J. A. Posey  
 Tire chain (2 pats.).....D. J. Martin  
 Tire, Punctureless vehicle.....P. H. Calmus  
 Tire sifter bridge plate.....W. F. Rose  
 Tire tool.....C. S. Edwards  
 Tire, Vehicle cushion.....J. Dana  
 Tobacco leaf feeding device.....G. F. Whiting et al.  
 Tobacco pipe.....P. F. Barton  
 Tobacco pipe.....C. E. Dolle  
 Toe binder.....R. F. McFeely  
 Toe binding apparatus.....R. F. McFeely  
 Tongue attachment, Vehicle, implement, and wagon.....W. H. Salyers  
 Tool handles, Means for attaching.....T. J. Fegley et al.  
 Tool stock driving mechanism.....J. C. Tasse  
 Tooling machine.....H. P. Townsend  
 Toy gun.....P. D. Zeigler  
 Toy, Mechanical.....J. Mullen  
 Track laying machine.....R. H. Simpson  
 Traction wheel and means for driving same.....M. A. Graley  
 Transplanting machine.....E. E. Reavis  
 Trolley.....E. Swinarski  
 Trolley finder.....A. Klein et al.  
 Trolley switch.....L. E. Elwell  
 Trombone.....J. L. De Good  
 Truck bolster, Car.....J. M. Rohlfing  
 Truck, Car.....G. R. Henderson  
 Truck, Railway car.....W. H. Armstrong  
 Tube machine.....B. K. Ford  
 Tube mill.....W. B. Easton  
 Turbine.....P. P. Pierce  
 Turbines, Casting for steam.....P. A. Bancel  
 Type setting and casting machine.....J. Dorneth  
 Typewriter tabulator.....A. Bullock  
 Typewriting machine.....S. W. Turner  
 Typewriting machine.....A. Schneeloch  
 Typewriting machine.....G. E. Griffin  
 Typewriting machine.....W. F. Helmond  
 Udder clamp for cows.....H. E. Knudson  
 Umbrella, Folding.....W. H. R. Umstead  
 Umbrellas, Gear for folding.....M. F. Mareau  
 Undergarment, Woman's.....E. Emmers  
 Universal joint.....R. H. Lowndes  
 Valve.....A. J. Collar  
 Valve, Automatically operating.....J. A. and L. F. Mustee  
 Valve for flush tanks, Fluid control supply.....E. G. Cook  
 Valve for internal combustion engines.....C. B. Redrup  
 Valve for steam pump engines.....C. M. Stoner et al.  
 Valve grinder.....S. S. Livezey  
 Valve mechanism.....T. Galvin et al.  
 Valve operating device.....G. B. Porsch  
 Valve structure.....M. E. Morel  
 Valve structure.....O. W. Bailey  
 Vehicle.....G. P. Henderson et al.  
 Vehicle.....C. Grotnes  
 Vehicle driving mechanism, Motor.....J. D. Rowland  
 Vehicle, Motor.....H. Pieper  
 Vehicle, steering mechanism.....S. H. Kennedy  
 Vehicle wheel.....G. D. Bulmer  
 Vehicle wheel.....B. B. Moss  
 Vehicles, Lever control mechanism for motor.....R. A. McEwen  
 Ventilator.....D. K. Swartwout  
 Voting machine.....G. C. Claypoole  
 Wagon attachment.....J. D. Hammond  
 Wagon body lining.....W. R. McDonald  
 Waist, Maternity.....M. A. Kniseley  
 Wall and like plug or socket.....J. J. Rawlings  
 Wardrobe, Collapsible.....M. O. Berry  
 Washing machine.....D. Cameron  
 Washing machine.....C. W. Blakeslee et al.  
 Washing machine, Electric.....R. D. Robinson  
 Watch gage.....T. J. Juzek  
 Water heater and sprinkler system, Combined.....W. R. Hammond  
 Water motor.....G. W. Mickel  
 Water motor.....K. K. Schulz  
 Water tube boiler.....J. P. Davies  
 Waterproof blanketing, felt, and the like.....J. Wiesner  
 Weather strip or seal for sliding window sashes.....R. W. Cross  
 Weighing machine.....A. Smith et al.  
 Well walking beam, Oil.....R. Labudde  
 Wheel.....A. C. Lambe  
 Wheel.....M. B. Okun  
 Wheel.....J. E. Strietelmeier  
 Wind shield.....H. H. White  
 Window screen.....F. Klousnitzer  
 Wire cloth, Sales rack for.....A. H. C. Hornbostel

Window platform.....J. Dybeck  
 Wire mesh screen, Electrified.....G. R. Wimbish  
 Wire rod transporting device.....E. Ayers  
 Wire twister.....B. F. Davis  
 Wood working machine.....F. A. Redner  
 Wrench.....W. S. Allyn  
 Wrench.....J. W. Tyrrell  
 Wrench.....K. Linerth  
 Zinc, Apparatus for the manufacture of metallic.....R. D. Lance  
 Zinc, Electrodeposition and refining of.....U. C. Tainton et al.

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Acetylene generator.....A. C. McGee  
 Acoustic apparatus.....E. Rubes  
 Adding machine.....A. Bordt  
 Advertising device, Printed.....L. Geer  
 Aerial apparatus.....T. N. Burke  
 Aeroplanes, Balance steering plane for.....W. L. Marr  
 Alloys, Producing low-carbon nickel.....E. A. Byrnes  
 Amalgamating concentrator.....L. Cannaday  
 Amalgamator, Hydraulic.....R. L. and J. M. Brown  
 Amusement device.....J. O. Cook  
 Animal heads, Treating.....E. F. Bloss  
 Animal trap.....H. M. Miller  
 Armature.....O. F. Conklin  
 Asphalting machine.....W. P. Tarrant  
 Atomizer.....G. L. Kennedy  
 Auto lock.....J. N. Bradley  
 Automatic coupling.....J. P. Carmine  
 Automatic gate.....M. Boom  
 Automobile.....W. L. Tobey  
 Automobile and hydroplane, Combined.....W. H. McGaffey  
 Automobile buffer.....S. S. Waldman  
 Automobile horn.....H. C. Evelyn  
 Axle and shaft with variable loads usable as a brake and also as auxiliary driving power therefor, Live.....A. E. W. Finch  
 Axle structure for automobiles, Rear.....E. J. Gulick  
 Bag holder.....J. G. Lundy  
 Bathroom fixture.....O. Moberg et al.  
 Bearing, Antifriction.....E. S. Woods et al.  
 Bearing, Ball.....H. Hess  
 Bearing for cream separators.....A. S. Stenborg  
 Bearing, Roller.....T. Cooper  
 Bed.....A. W. and S. W. Smith  
 Bed, Folding.....W. H. McCarty  
 Bed, Folding or disappearing wall.....N. J. Snidow  
 Bed support, Adjustable.....W. J. Curtis  
 Bedsteads and similar appliances, Auxiliary side rail for.....M. Barr  
 Bicycle propelled chair.....E. E. Hosmer  
 Blouse retainer and skirt supporter.....S. E. Rutter  
 Blouse shield, Child's.....S. and C. Bernstein  
 Blower for boilers.....J. Magee  
 Boat, Submarine or submersible.....C. Launrent  
 Body elevating mechanism.....T. Wright  
 Body, Side delivery dump.....T. Wright  
 Boiler exposed directly to the fire, Means for protecting the seams of a.....J. J. Gage  
 Boiler scale, Apparatus for preventing the formation of.....T. Brazda et al.  
 Boiler scale, Preventing the formation of.....T. Brazda et al.  
 Bolster stake holder.....C. Faust  
 Boot and shoe.....S. L. Kelley  
 Boot and shoe welt.....W. B. Arnold  
 Boot and shoe welt.....G. F. Dunn  
 Boot and shoe welting.....W. B. Arnold  
 Boot and shoe welting, Forming.....W. B. Arnold  
 Boot or shoe.....C. H. Young  
 Boots and shoes, Manufacture of toe-cases or toe-boxes for.....J. H. Brown  
 Boring bar.....E. H. Sweeley  
 Bottle closure, Milk.....S. H. Smith  
 Bottle, Non-refillable.....S. E. Woolmington  
 Bottle, Non-refillable.....G. C. and H. W. Bentnek  
 Bracelet.....O. L. Gammelgaard  
 Bracelet.....M. L. Robbins  
 Brake head, Adjustable.....P. B. Harrison  
 Brush and mop, Combination scrub.....E. W. Barnwell  
 Brush, Rotary.....M. X. Gardner  
 Brush, Tooth.....H. Barnes  
 Brush, Tooth.....J. A. Watt  
 Buckle.....T. W. Meredith  
 Bunting into strips, Machine for cutting.....J. L. Stuart  
 Burglar alarm.....A. Lindstrom  
 Burner.....W. P. C. Stout et al.  
 Burner.....F. E. Fender  
 Button, Detachable.....J. Rankin  
 Button setting, Hand tool for.....W. E. Elliott  
 Cabinet.....W. E. C. Stephen  
 Cabinet.....F. Huhn  
 Calling device.....F. R. McBerty  
 Can testing machine.....W. G. Moffet  
 Car automatic safety appliance, Railway.....C. H. Schumaker et al.  
 Car door.....P. T. Faris et al.  
 Car door operating mechanism.....A. E. Zimmer  
 Car door operator.....J. Baker  
 Car dump, Automatic.....J. J. Putnam  
 Car fender.....M. Jacobson  
 Car fender.....J. P. Geraghty et al.  
 Car propeller.....F. E. Butler  
 Car, Steel box.....R. V. Sage  
 Cars, Antifriction side bearing for railway.....E. S. Woods et al.  
 Carbureter.....C. F. Johnson  
 Carbureter.....A. C. Stewart  
 Carousel.....H. L. Miller  
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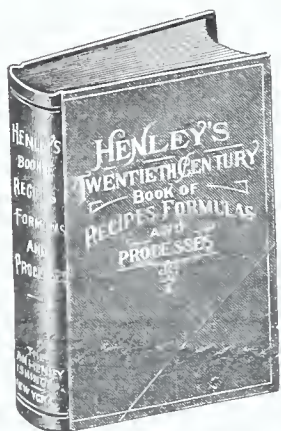
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(Continued in August Number)



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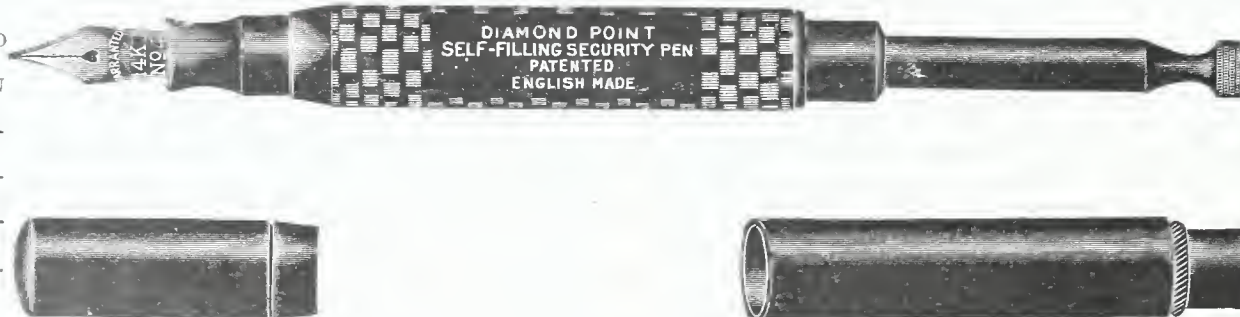
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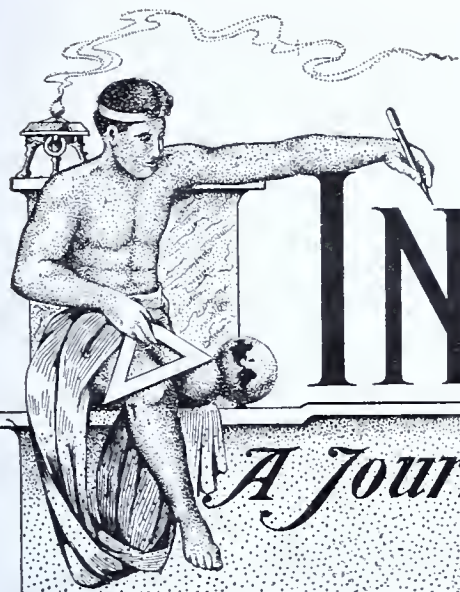
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## ELECTRIC SHIPBUILDING CRANE.

By FRANK C. PERKINS.

THE accompanying illustration shows the general construction and method of operation of a new type of electric crane recently installed at Camden, N. J., by the New York Shipbuilding Company. This revolving locomotive-type electric crane is mounted on a gantry: and while machines similar to this have been used frequently, especially at the plant of the Maryland Steel Company, this machine is unique in that it is arranged to travel backward and forward on a gantry so as to serve two sides of the pier, and is also of very large capacity.

This electric crane is designed to hoist a load of two different speeds, to revolve, to move backward and forward and to travel along the dock by its own power. The machine is capable of lifting a load of 35 tons at 20 feet radius, or 15 tons at 68 feet radius. The crane is moved backward and forward on the gantry by means of wire rope which is attached at each end and is wound around a drum under the center of the machine.

This drum is driven by a worm. It may be stated that by this arrangement the machine is always locked so as to prevent the possibility of moving across the gantry by means of wind. The machine is moved along the dock by means of a motor placed in the

center of the gantry, from which power is transmitted to one truck on either side of the dock by means of suitable steel shafts and gearing.

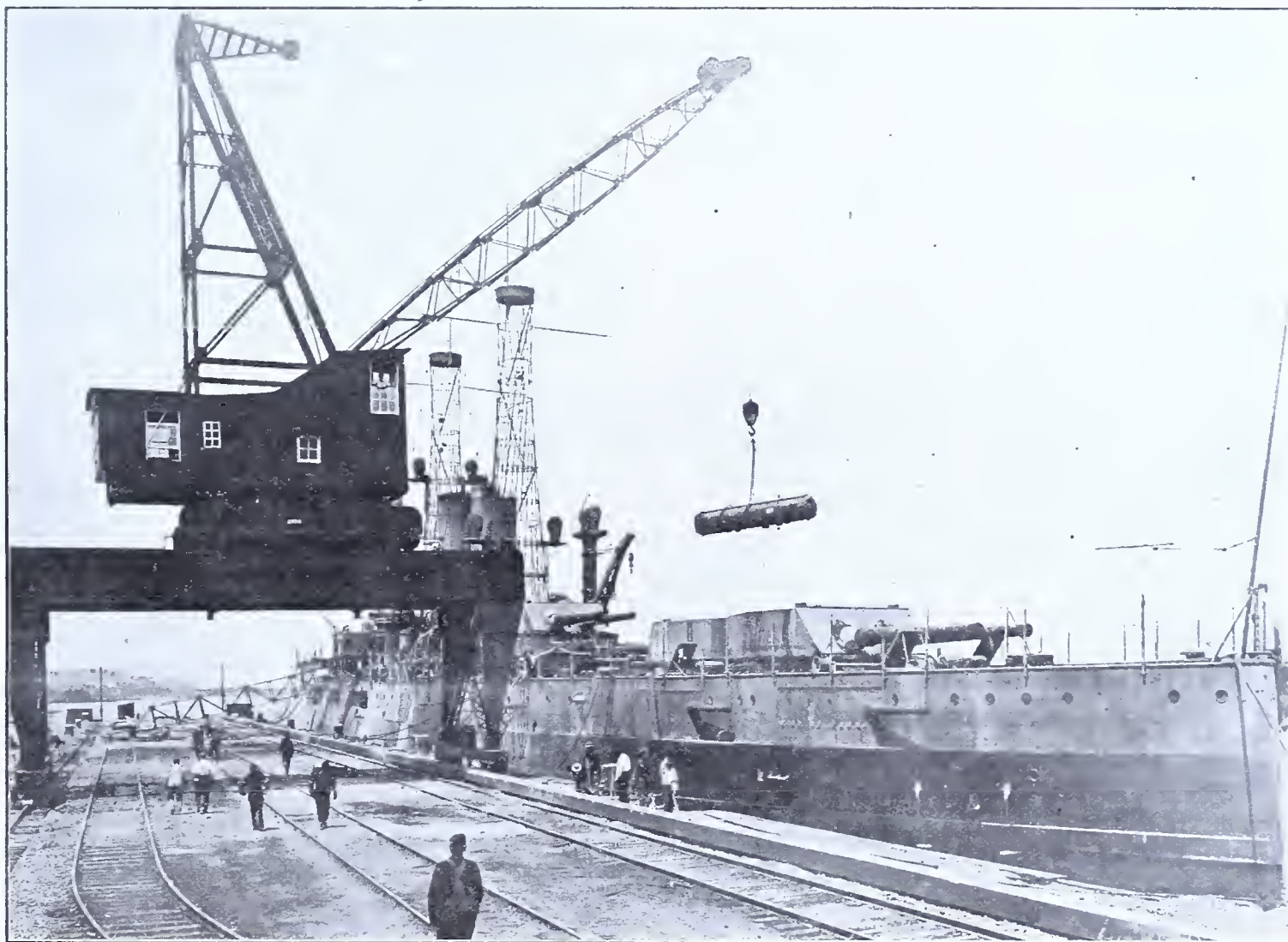
There is one electric motor used for hoisting the load and one for rotating and raising and lowering the boom, and moving the machine backward and

per minute, and the travel speed is at the rate of 150 feet per minute. These speeds were slower than was originally contemplated. The slower speeds were found desirable on account of the lack of available power. There is an electric dynamo brake connected with the hoist motor, and electric power is delivered

quent descriptions of new and interesting forms of cranes. A boom 70 foot long on a railroad crane is exceptional, but such an apparatus is used for lifting cement on the Panama Canal. Strange to say, the lifting capacity of the crane is only 7 tons. There has recently been erected in a city in

Germany a giant crane which is unique in this, that it is operated by storage batteries. The power for the lifting machinery is obtained from a battery of 150 storage cells, instead of direct from an electric cable. A heavy counterweight at one end of the crane enables a load of almost eight tons to be lifted without upsetting the machine, which is propelled by a 22 horsepower motor and will easily pull three or four loaded freight cars at a speed of about four miles per hour.

Then there is the electric monorail crane, which, unlike ordinary traveling devices of this class, runs through narrow passages and doorways on its way from one department of the plant to



forward across the gantry. The machine will hoist a 35 ton load at 15 feet per minute and a 15 ton load at 30 feet per minute. The rotating speed is two revolutions per minute.

It is of interest to note that the movement across the gantry is 25 feet

to the machine by means of a third rail running along the dock and across the gantry and below the rotating frame. The electric power is supplied from a direct current circuit of 220 volts pressure.

The technical press contains fre-

another, has several branches, and runs around curves. Probably the most interesting feature of this crane lies in the track switches, which have no moving parts. There are no open ends of track to be guarded, no setting of switches for the desired direction



of travel, and the trolleys run through the track switches in all directions without stopping. All the operator has to do is to select his route and pull the required lever. The two I-beams, constituting the main or straight-through track, and the third I-beam, which constitutes the spur or curved track, have cast steel extension pieces, or tongues, rigidly secured to the terminals, the projecting portion of each tongue being at the same level as, and forming a continuation of, the bottom flange of the I-beams. These tongues are so shaped that there is sufficient space left between them for the trolley trucks to pass.

When the trolley approaches a switch at which it is desired to run from the main to the spur track, the operator pulls the steering lever. This raises a horizontal roller to a position in which it engages a curved rib on the under side of the central switch-tongue and the leading truck is swiveled, thus diverting the crane to the spur track. No operation of levers is necessary to return from the spur to the main track, nor to run through the track switch on the main track in either direction.

An adaptation of the ordinary shipyard crane has been used in the construction of office buildings in London. The framework provided a suitable support for the tracks upon which traveled the electrically operated cranes that conveyed the building material to the desired position. The framework was sufficiently large to allow a clearance of the building.

One of the largest cranes in the world is that at the side of the fitting-out basin of the Penhoet shipbuilding yard at St. Nazaire, France. It can handle 150 tons, and consists of a central latticed column 134 feet high, provided at the top with a roller path on which rests the crane. There are two tracks in the jib, the lower one carrying a crab operated by two 50 horsepower motors. The upper track carries a 15 ton traveler which can run to the extreme end of the jib. The lower track is 163 feet above the quay level, and the higher one, 172 feet. As above noted, it can lift 150 tons at a 65 foot radius, 100 tons at 90 feet, and 60 tons at 124 feet. Even this huge structure, however, seems small in comparison with a monster crane that has been recently erected on the river Clyde, the test load of which was 250 tons. The jibhead of the crane is of the hammerhead type, built on the cantilever principle, and stands 160 feet above high water level. The jib has a total length of 270 feet and extends outward 160 feet from the center. The motors for operating the gear vary from 60 to 90 horsepower. The stability of the structure depends upon four huge steel cylinders, one under each corner of the tower. These cylinders, 15 in diameter, are filled with concrete and sunk 74 feet below ground.

An ingenious crane attachment for motor trucks, exhibited at the motor show in Brussels, is designed to lift heavy objects and deposit them at any point desired on the carrying platform of the truck. It travels out beyond the rear end of the truck body on its runway, lifts the load, and then works

itself back over the body of the truck.

The Austrian navy yard at Pola, on the Adriatic, has been provided with a huge crane of interesting construction, which was built primarily for the raising of sunken submarines, but is available for any kind of lifting. It has a height of 120 feet and its lifting capacity exceeds 300 tons. The cables are about 2,600 feet long, 2.2 inches in diameter, and weigh 40,000 pounds. It is claimed that the crane can lift a submarine from a depth of 360 feet at the rate of about two and a half feet per minute.

#### A Gigantic Wireless Plant.

The recent tests with the wireless towers at Arlington have shown that it is possible to send messages three thousand miles. The words launched into the air have been heard by the station on the Eiffel tower, Paris, although the return messages could not be received in this country, as the instruments in France are not yet strong enough. A new system is to be installed on the Eiffel within a few months which, it is believed, will make reciprocal communication easy. Meanwhile it is reported that an enormous plant is to be located on the mountains of the Grande Chartreuse, in Southeast France. The plan is to use mountain peaks for telegraph poles, and throw a network of antennae fifteen miles broadcast over a rocky chain of ridges and summits too barren for human dwellers who might object to living amid a cyclopean spider's web of live wires. The cost, says the *Literary Digest*, is estimated at about \$5,000. The antennae will be formed of ten wires stretched horizontally, each about 15 miles long. They will be supported, through high-tension insulators, on posts planted on the mountain summits. In the longest span the lowest part of the curve will still be 1,500 feet above the bottom of the valley. The object of an installation on this scale is to permit the study of the application to wireless telegraphy of great wave lengths, of several hundreds of miles. Antennae of great wave length may be set in electric oscillation by direct excitation, by means of ordinary alternators of a frequency of 1,000, which are in current use today, especially for "musical" wireless telegraphy. With the usual wave lengths, direct excitation can take place only with alternators of very high frequency: or indirect methods of excitation must be used, which alter the waves. Again, great wave lengths will enable those at the receiving station to dispense with detectors, making the telephonic receiver directly sensitive to currents of a frequency of 1,000. The wave length now used at the Eiffel tower is a mile and a quarter. It may be seen what progress would be made in adopting the new plant.

To keep themselves posted in the progress of the arts in which they are interested, inventors and manufacturers should subscribe for the *INVENTIVE AGE*, which publishes a list of all patents issued each month. The low subscription price and the character of the publication entitle it to the support of all the inventors of the country.

## HYDRAULIC MINING.

HYDRAULIC mining has been practiced with success for a number of years, and the economy of the use of giant or monitor nozzles has resulted in their employment for sluicing and various kinds of hydraulic work. It may be of interest to note these devices in operation. The accompanying illustration, Fig. 1, shows a Hendy Giant nozzle in operation in hydraulic mining service, while Fig. 2 shows an Eastman nozzle throwing a solid 3½ inch stream at a pressure of eighty-two pounds. This stream is striking the embankment at Seattle, Washington with tremendous effect.

It is stated that but few of the users of the giant or monitor nozzles—like many fire departments—have in the past paid much attention to the nozzle end, being content if a nozzle was furnished. While the work accomplished has been remarkable, great

Deluge Stream, from an embankment 300 feet long and 70 feet high, boring out thousands of tons of earth per hour. This was done while they were building one of the largest dams in the country, that across the Connecticut River at Vernon, Vermont.

It may be remarked that this is not the only way that hydraulic methods can be applied to mining operations. Hydraulic cartridges are used as a substitute for explosives in the coal fields of England, and there are indications that they are now coming into general use. The day is not far distant when this scientific method of loosening coal, rock, etc. with greater safety to surrounding structures and workmen than with the old methods will be permanently adopted. Briefly put, the system is that of hydraulic pressure, by which great power may be gradually attained by



FIG. 1.—HENDY GIANT NOZZLE IN HYDRAULIC MINING SERVICE.

improvement and saving can be made by the use of efficient nozzles. It is held that for this work the best results must depend upon the compactness, solidity and distance of the streams produced; a solid and long distance stream obviously doing many times as much work as one with less spray, which has no penetrating power.

It will be readily understood that for hydraulic work in hard material, and particularly hard clay, it is chiefly the amount of energy exerted by the water at the instant of striking the solid material that determines the quantity taken in suspension and carried away with the stream. It is therefore the solid part of the stream that earns the money, and the sprayer seen with some tips represents in a large degree wasted energy. Another valuable feature of the nozzles described is the increased working range of the solid stream, which means decreased expense.

It is of interest to note that the Loren N. Farnum Company cut out earth and rocks with an Eastman

means of a tube filled with water. The hydraulic cartridge in its present form is the invention of the late Mr. James Tonge, a British mechanical engineer, who first called a sceptical world's attention to its undoubted merits as how far back as 1898. Since that time, ever, many improvements have been effected on the original apparatus. Thus the pistons are now made telescopic—an inner working within an outer—and the old lever-operated pump (which was such a feature of the original invention) has been replaced by a screw pump, which obtains a greater pressure on the water, as much as six tons to the square inch being obtainable by this manner of doing the work.

The hydraulic mining cartridge, which has been chiefly designed to supply the need for a different method of bringing down coal after it has been undercut, has many advantages over the high explosives used in the getting of coal. Obviously, its greatest feature lies in its absolute immunity from danger. By its use coal can be



brought down at all hours of the day, thus avoiding night work for such a purpose. There is no shaking of the roof or damage to doors from vibration of air through fast shots: there is practically no dust or loss of time through missed shots, and an entire absence of noxious fumes.

So effectively does the hydraulic cartridge do its work that in a seam using fine cartridges 450 tons of coal are produced per day, of which 75 per cent is large coal and 25 per cent small. If in the same seam the coal is brought down by explosives, the percentage of large coal invariably decreases to about 65 per cent, whilst the percentage of small coal increases to about 35 per cent. It is claimed that an extra price per ton is gained for the coal brought down by hydraulic cartridges on account of its greater hardness and freedom from dust.

further stroke compression impossible. The pump plunger is then withdrawn, and the screw handle rotated to the right for its entire length. With the right hand resting lightly against the pump plunger to hold it in position, the screw handle must be rapidly rotated back to its normal position. The process is then repeated until expansion of the pistons has been reached, or the coal has fallen.

As the pressure increases, the coal will begin to crack, until long seams and splits appear in all directions. The maximum pressure is obtained at the moment the elastic limit of the coal is reached, and shortly thereafter it falls in large lumps, rarely too large for one man to handle, and free from powder fracture or slack. The release valve is then opened, and the pistons are pressed back into place, the water returning to the tank through

used for the firing, the wire passing out through one end of the tube. When the tube had been filled with water and the charge of explosive placed in position, the open end was securely closed by means of a bung. The cartridge was then placed in the shot hole and tamped in the ordinary way. The charge of explosive when in the cartridge lay in such a position as to be almost completely surrounded by water, and by thus placing the charge on the bottom of the cartridge there was a much greater head of water for extinguishing any flame that might arise when the charge exploded.

#### Fractured Bones Screwed and Nailed.

Such strides have been made in surgery of recent years that the operator does not hesitate nowadays to set bones in a manner that would have been considered impossible in the time of our grandfathers. He treats the broken bones much as if they were broken pieces of wood, nailing or screwing them together as occasion requires. Sometimes an ordinary nail serves to hold the ends together. Sometimes it is necessary to put a metal cleat on either side of the fracture and fasten it together with screws. Or the surgeon may put in a pin as the carpenter uses a dowel. This may be of metal, bone or ivory—it being understood that it is always sterilized in advance—the center of the bone being first drilled out to receive it. Wires are also used for the purpose. After the fracture has healed, these foreign substances may be removed, or they may be left indefinitely without apparent inconvenience to the patient.

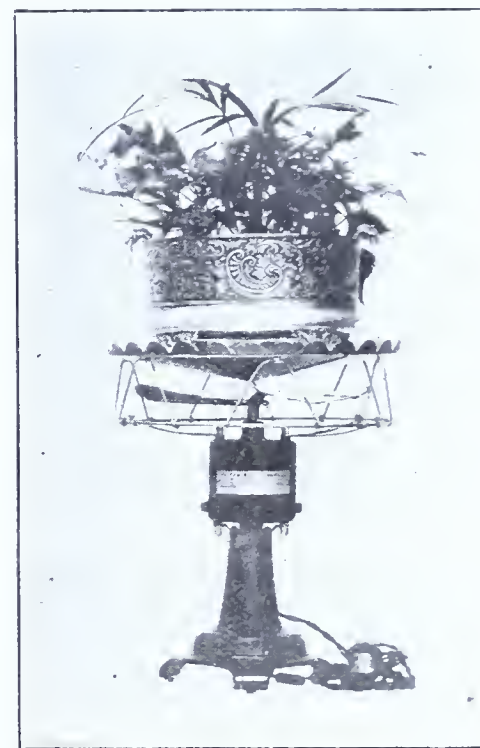
The ever-increasing use of electricity has made the manufacture of electrical instruments and meters an important and highly specialized industry with many complex problems. In view of this fact, the Bureau of Foreign and Domestic Commerce dispatched Mr. H. B. Brooks, an expert of the United States Bureau of Standards, as commercial agent to make a study of this industry in Europe, where much pioneer work has been done in electrical measurements. Mr. Brooks visited the principal manufacturers and obtained such information in regard to their organization, methods, and products as would be of interest to American makers and users. In his report, which has recently been issued by the Bureau of Foreign and Domestic Commerce as Special Agents Series No. 66, the works of 31 leading European firms are described. Attention is given to the equipment, the number of employees, the hours of labor, and the nature of the products manufactured. Copies of the bulletin may be obtained by application to the Bureau of Foreign and Domestic Commerce at Washington.

THE INVENTIVE AGE contains sound advice to inventors and patentees. For lack of such advice many have lost money. Subscription price, one dollar a year.

#### ORNAMENTAL ELECTRIC FAN.

THE accompanying illustration shows a novel and artistic design for an electric table fan, so constructed that all parts of the table and room receive an equal distribution of air all the time. The deflector causes a continuous direct breeze on all sides, a result impossible to achieve with any other form of electric fan.

This device is most efficient in its operation, and the deflecting plate forms a convenient stand for a fern dish or flowers. The entire equipment is an ornament to the table, being beautifully finished in polished nickel and dull satin jet. A silk covered cord conducts the current from the plug of an ordinary lamp socket to the universal electric motor.



This is only one of the methods used to conceal implements of utility in the household. In one of the loud-speaking telephone outfits made in Paris and intended to be employed for communication within the house, the instruments are hidden in flower vases, which may be placed on a table or mantel. The receiver and microphone are mounted in the base of the vase, a small plug and a flexible cord serving for the battery connection. Sometimes an odd-looking ornamental figure takes the place of the flower vase.

#### Oxygen Helmets for Navy.

The Navy Department has ordered a small number of oxygen helmets, to be supplied to the submarines and to the battleships which use crude oil as fuel. In the case of the submarines it is believed that the helmets will be efficacious when poisonous gases are accidentally generated within the hulls, as happened two years ago with disastrous results.

The great oil tanks in the battleships have been found to contain dead'y oil fumes after they have been emptied of their contents. It is intended that the helmets shall serve as a protection to the mechanics who are obliged to enter these tanks and compartments. Their use is also contemplated in the rescue of firemen or boiler tenders overcome by bursting steam pipes.



FIG. 2.—EASTMAN NOZZLE THROWING SOLID  $3\frac{1}{2}$  STREAM AT SEATTLE, WASH.

In using the hydraulic cartridge, it is of course essential that the coal should first be undercut. After this is done, or simultaneously with the undercutting, the holes are drilled slightly less in depth than the undercut, parallel to and against the roof. The hole is then thoroughly cleaned with a miner's scraper, and the steel liner laid in the hole with the "L" shaped end innermost. The cartridge, with pump and pipe attached, is then placed on top of the liner and both are pushed to the back of the hole. The water tank is filled and hung on the pipe, the stop-cock beneath the water tank opened, and the suction hose coupled, the normal position of the screw handle and pump plunger being assured by pushing the pump plunger in as far as possible, and then unscrewing the large screw handle until it meets the head of the pump plunger. The release valve on the upper left side of the pump is then opened, and the pump plunger slowly drawn back and rapidly forced inward, three or four times, until a full stream of water, free from air, is ejected from the drain pipe. Then, when the pump plunger is in, the release valve must be closed tight, in order to prevent leakage, and the pumping process repeated until the resistance has made

the drain pipe. Should the coal be only broken loose but not down, with the first hole, and it is desired to place the cartridge in the second hole, the pistons may be returned to place by opening the release valve, permitting the water to escape, and then rapidly working the cartridge up and down in the hole. As soon as the pistons are in position, the cartridge is ready for the next hole.

Fifteen or sixteen years ago, when Mr. Tonge first introduced the hydraulic cartridge, quite a number of "safety explosives" were on the market, some of which were more curious than practicable. One of these was a water cartridge, which was named after its inventor, Mr. J. J. Speakman, and which, it was claimed, could be fired without flame and its attendant risk. The outer case of the Speakman cartridge consisted of a tin tube 13 inches long by  $1\frac{1}{4}$  inches in diameter, sufficiently rigid to prevent crushing down during the operation of fixing and tamping. The tin tube was filled with water and the charge of explosive, which was placed in the water, was partially suspended over the bottom of the tube by means of an electric wire which connected the detonator in the charge with the battery

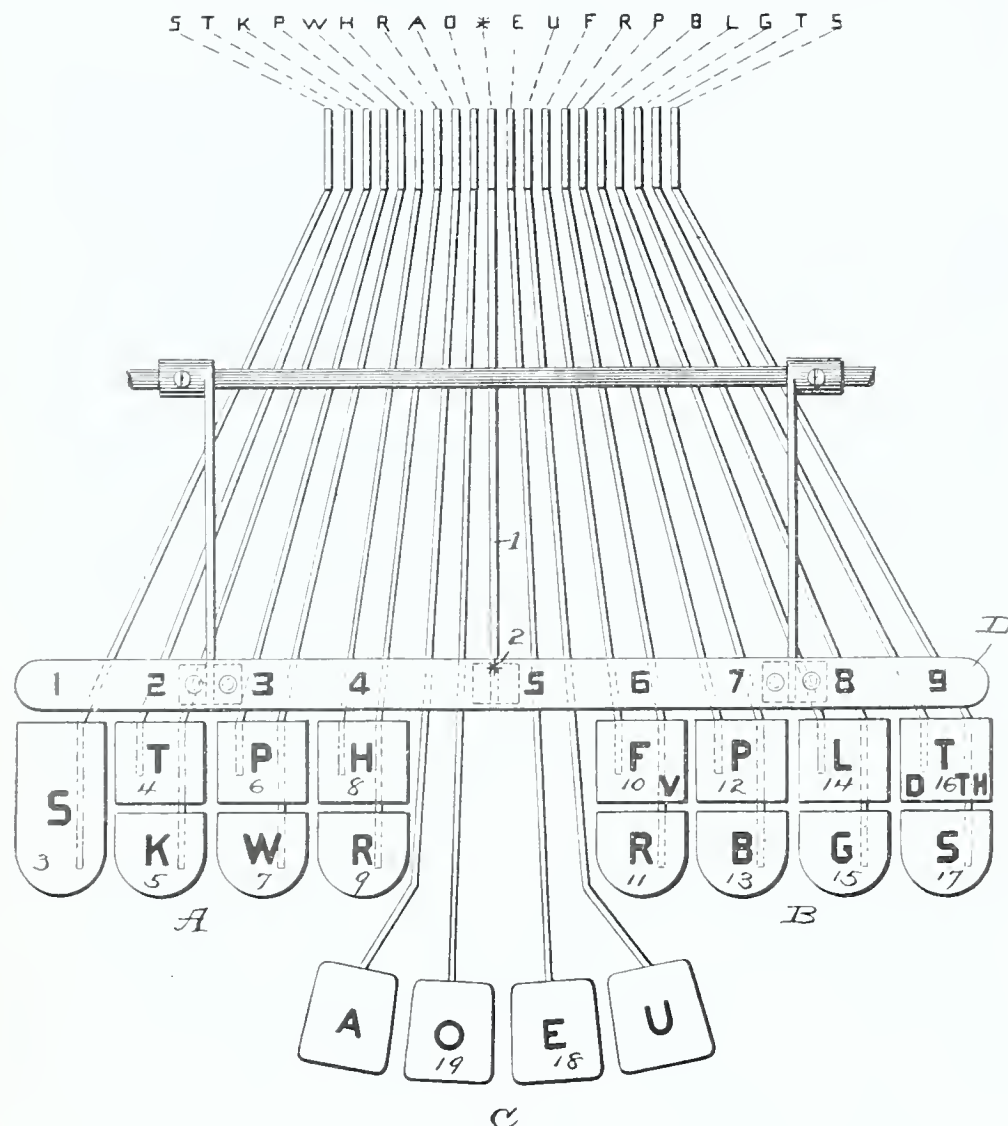


# CLEVER NEW PATENTS.

STENOGRAPHIC WRITING MEANS—COMPOUND TOOL.

## Stenographic Writing Means.

Stenographic typewriters that would still further increase the speed possible in taking dictation, and that would provide a set of characters always legible, have long attracted the attention of inventors. Something really practicable in this line has been patented by Ward S. Ireland, of Dallas, Texas. His device has a keyboard, as seen in the cut, with three groups of keys, A, B and C, and a single elongated key D, adapted to operate a type bar 1, while the keys of the three groups co-operate each with its type bar. The key bar 1 has numerals and a cipher thereon, which will be read with certain characters to designate other numbers. The groups of keys are arranged in horizontal alinement with each other beside the group C, which lies in a curved line before the same. The keys of the group B are of about the same size, but the key 3 of group A is larger, being most often employed in combination with others.

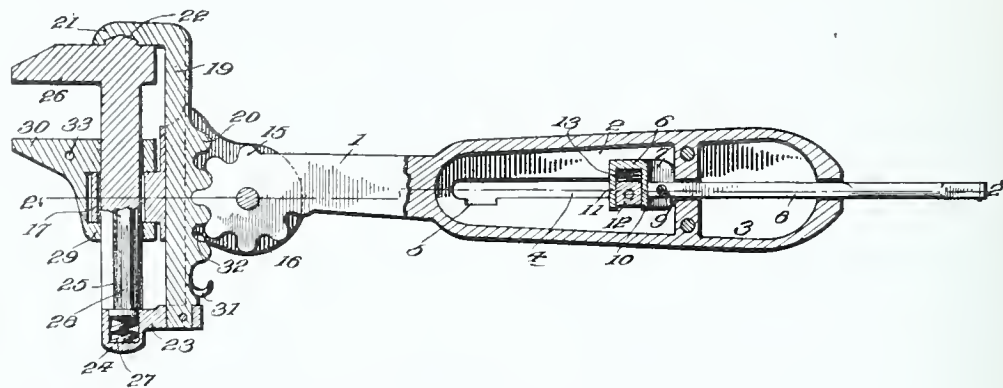


The keys of group A represent the initial consonants of words, and prefixes, and the keys of group B represent terminal consonants and suffixes. The group C has vowels. It will be seen from the arrangement that initial consonants in their correct sequence may be obtained at a single stroke. These keys are controllable by the four fingers of the left hand. In the same way the keys of group B can be operated singly or in groups by the right hand, and group C can be worked by the thumbs. All these keys or any combination may be struck at a single operation of the hands. No shift keys are used, thus making a single case key board. It is obvious to those familiar with the shorthand method that this machine can be operated faster than the words can be expressed by hand, and that the printed record can be readily understood by those who know the code of character designations.

## Compound Tool.

A novelty in the way of a simple and compact tool with which a number of operations may be performed, in which the wrench will automatically adjust itself to the nut or bolt, and that may be operated in a limited space without fatigue, is the invention of Wm. T. Long, of Sumner, Washington. The handle is hollow and has side plates with recessed slots therein. Sliding in the handle is a cross head with perforated ears, pivoted between which is the end of a screw driver. Ribs 10 of the ears engage the slots and guide the cross head in its longitudinal movement when the screw driver is projected. The cross head is an angular sleeve 12, which moves along the slots and is made to

enter the recesses by a spring 13. Cover plates 14 are threaded into the angular sleeve and engage the outer faces of the handle, maintaining the angular sleeves within the same. When the screw driver is withdrawn, the sleeve acts as a locking pin for the same. When it is wished to use the tool, the thumb pieces of cover plates 14 are moved laterally against the spring so as to release the locking pin, after which the tool is moved longitudinally until the cross head and locking pin reach the outer ends of the slots, when the spring 13 will project the pin into engagement with the recesses 5 and hold the tool projected. It may then be used in the ordinary manner.



The end of the shank distant from the handle is formed into a gear 15 and fits between cheek plates 16 which form a housing. A sleeve 17 extends from the cheek plates, and between it and the gear are guides, in which slides a rack bar 19 with teeth meshing with the gear, so that when the handle is swung to one side, relative movement of the two is effected. One end of the rack bar is formed integral with a boss 21 having a cavity in its inner face. At the other end of the rack bar is a standard, with a boss and cavity constituting bearings for a stem 25 with a jaw 26. A spring in the boss bears on the stem so as to compensate for wear of the parts, in order that the jaw and its stem will not become loose through long usage. The stem 25 passes through the sleeve 17 and is reduced at opposite points to provide flat faces which slide in faces in the lugs of the jaw 30, which lugs engage the opposite ends of the sleeve 17. It will be seen that the stem 25 may be turned to any angle, and the wrench can be used in narrow spaces without strain. To use the wrench, the handle is turned as shown in Fig. 1. If the handle is now turned toward the jaw 26, the gear 15 will be caused to travel on rack bar 20 and the cheek plates 16 will consequently be caused to move with the handle toward the said jaw. The sleeve 17 will impart movement directly to the jaw 30 so that it will move toward the jaw 26 and engage the nut, and the continued movement of the handle will turn the nut. If the handle is reversed, the jaws will move apart and the wrench be disengaged from the nut so that a fresh grip may be obtained without wearing it away. The wrench is thus well adapted for use on soft metal or highly finished goods.

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## LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

### INTERNATIONAL CURTIS MARINE TURBINE CO. et al. v. WILLIAM CRAMP & SONS SHIP & ENGINE BLDG. CO.

(Circuit Court of Appeals, Third Circuit. December 20, 1912. Rehearing Denied March 1913. 202 F. R. p. 932.)

#### 1. PATENTS—VALIDITY AND INFRINGEMENT—STEAM TURBINE.

The Curtis patent, No. 566,969, for an elastic-fluid turbine, covers an improved turbine of the impulse type, theretofore represented solely, so far as a practical mechanism was concerned, by the invention of De Laval, which, owing to the high speed developed, could be utilized only in turbines of small size, while the opposite or reaction type was similarly represented by that of Parsons, which, owing to various defects, could be applied only to those of large size. While these inventors were pioneers in the art, and their inventions noteworthy and meritorious, Curtis succeeded in blending the advantages and avoiding the disadvantages of both, and his patent discloses a principle and means of operation applicable to turbines of all sizes consisting, "broadly stated, of pressure-staging an impulse turbine, the velocity compounding thereof and the abstraction at each passage of the steam of substantially all, or the principal part, of the vis viva developed at the preceding stage." Such patent was not anticipated and discloses invention of high order; also, held infringed.

#### 2. PATENTS—INFRINGEMENT—MACHINERY—SIMILARITY.

The test of infringement of a patented machine is not its physical appearance, but the principle on which it operates.

#### 3. PATENTS—INVENTIONS—ELEMENTS.

The inventive element of a patented device or machine may consist in the conception of a novel abstract idea, or in the practical means of applying what has theretofore been but a mere abstract idea. In the former, the conception of the abstract idea necessarily involves the details of utilizing it; but in the latter, it does not.

#### 4. PATENTS—SUIT FOR INFRINGEMENT—PROOF OF INFRINGEMENT.

Where a defendant, in its proposal for a government contract, which was accepted, specified a machine which as described would infringe complainant's patent, the court is justified in finding infringement, in the absence of evidence from defendant showing what it did in fact furnish.

#### 5. PATENTS—VALIDITY—STEAM TURBINE.

The Curtis patent, No. 595,435, for an elastic-fluid turbine, claims 1 to 4, inclusive, covering generally the use of cut-off devices in a steam turbine of the impulse, pressure-staging type, whereby different chambers can be operated or by-passed as desired, are void as too broad in view of the prior state of art.

#### 6. PATENTS—SUIT FOR INFRINGEMENT—EQUITY JURISDICTION.

A court of equity is not without jurisdiction of a suit for infringement of a patent because the alleged infringement by defendant consists in its contracting to furnish the infringing devices to the United States government as a part of the equipment of a naval vessel, and entering upon the work of their construction, nor is it deprived of jurisdiction to hear and decide the suit because prior to the hearing the devices were installed and delivered to the government, and an injunction cannot properly be granted.

### CLARK v. JACOB DOLL & SONS. SAME v. BEHRING PIANO CO.

(District Court, S. D. New York. Jan. 6, 1913. 202 F. R. p. 960.)

#### PATENTS—VALIDITY AND INFRINGEMENT—ADJUSTING DEVICE FOR AUTOMATIC MUSICAL INSTRUMENTS.

The Clark patent, No. 265,744, for an adjusting device for automatic musical instruments, claims 1, 5, 6, and 7 are too broad and void for anticipation; claims 2, 3, and 4, which cover a combination of flexible tubes constituting the ducts leading from the tracker bar to the pneumatic device, with an adjusting device by which the tracker bar is moved laterally at the will of the operator, were not anticipated, and disclose invention; also held infringed.

ARCHER et al. v. IMPERIAL MACH. CO. (District Court, S. D. New York. Jan. 11, 1913. 202 F. R. p. 964.)

#### 1. PATENTS—INVENTION—INCREASED UTILITY OF DEVICE.

Doing substantially the same thing in the same way, by substantially the same means, but with better results, is not such invention as will sustain a patent.

#### 2. PATENTS—INVENTION—MACHINE FOR PEELING POTATOES.

The Archer patent, No. 999,478, for a machine for peeling potatoes, consisting of a metal cylinder having a revolving metal disk near the bottom and its inner surface coated with a granulated abradant such as emery, is void for lack of invention; the only change over machines of the prior art being the substitution of the abradant material for metallic brushes, or other means of roughening the surface.

### FOWLER & WOLFE MFG. CO. v. McCURM-HOWEEL CO.

(District Court, S. D. New York. Jan. 15, 1913. 202 F. R. p. 964.)

#### PATENTS—VALIDITY—RADIATOR.

The Fowler patent, No. 609,800, for a radiator, claims 1-4 held void for anticipation and lack of novelty.

VACUUM ENGINEERING CO. v. DUNN. (District Court, S. D. New York. Dec. 16, 1912. 202 F. R. p. 967.)

#### 1. PATENTS—VALIDITY—PREVIOUS USE IN FOREIGN COUNTRY.

Under Rev. St. § 4923 (U. S. Comp. St. 1901, p. 3396), providing that, when a patentee at the time of his application believed himself to be the original and first inventor of the thing patented, the same shall not be held void on account of the invention or discovery "having been known or used in a foreign country before his invention or discovery thereof if it had not been patented or described in a printed publication," to defeat a patent on the ground of a prior foreign use, the foreign patenting or description in a printed publication must have been prior to the patentee's application.

#### 2. PATENTS—VALIDITY AND INFRINGEMENT—VACUUM CLEANER.

The Dunn and Locke patents, No. 893,853 and No. 919,369, each for a vacuum cleaner, were not anticipated and disclose invention; also held infringed.

### W. A. GAINES & CO. v. ROCK SPRING DISTILLING CO. et al.

(District Court, W. D. Kentucky, at Owensboro. February 7, 1913. 202 F. R. p. 989.)

#### 1. TRADE-MARKS AND TRADE-NAMES—JUDGMENT—CONCLUSIVENESS—SUBSEQUENT REGISTRATION.

Where, in a prior suit for infringement of a trade-mark, complainants were found not to be the rightful owners thereof, it being determined that H. & Co. had previously used the mark and were entitled thereto, such determination was res adjudicata of that issue as between the parties and their privies, and was not affected by complainant's subsequent ex parte registration of the trade-mark as authorized by Act Cong. Feb. 20, 1905, c. 592, § 6, 33 Stat. 726 (U. S. Comp. St. Supp. 1911, p. 1462), and this though defendant's cross-bill for affirmative relief in such former proceeding was dismissed: the result being to leave both parties free to use the mark as they pleased.

#### 2. TRADE-MARKS AND TRADE-NAMES—UNLAWFUL COMPETITION—OLD CROW.

Where defendant's right to use the words "Old Crow" as a trade-mark in the sale of whisky had been adjudicated prior to appellant's attempted ex parte registration of the name as a trade-mark, and it appeared that, while such name had been originally limited to straight whisky, both complainant and defendant had applied it to "blends," and that complainant's registration of the mark did not limit the use of the word to straight whiskies, and defendant's labels were not such as to mislead the public to believe that the whisky put out under such name was complainant's, the predecessors of both parties having used the name for over 45 years, complainant was not entitled to enjoin its use on the theory of unlawful competition.

### J. D. RANDALL CO. v. FOGLESONG MACHINE CO.

(Circuit Court of Appeals, Sixth Circuit. Feb. 14, 1913. 203 F. R. p. 41.)

#### PATENTS—VALIDITY AND INFRINGEMENT—MACHINE FOR STUFFING HORSE COLLARS.

The Collett and Rennie patent, No. 949,293, for a machine for stuffing horse collars

with tangled straw, was not anticipated, discloses patentable invention, and possesses great utility; also, held infringed.

### UNITED ELECTRIC CO. v. CREAMERY PACKAGE MFG. CO. et al.

(District Court, E. D. Wisconsin. March 3, 1913. 203 F. R. p. 53.)

#### TRADE-MARKS AND TRADE-NAMES—UNFAIR COMPETITION—INTERFERENCE WITH ANOTHER'S BUSINESS—INJUNCTION.

It is within the right of the owner of a patent, notwithstanding the pendency of suits against the manufacturers of alleged infringing articles, to notify users of such articles of its claims, and its intention to protect its rights by suits against users, provided such notices contain no misstatements of fact and are sent in good faith, and not for the purpose of unnecessarily injuring defendant's business; and the sending of two or three such letters is not sufficient to establish such a wrongful intent as will justify a court in granting an injunction.

#### In re BECKWITH.

(Circuit Court of Appeals, Seventh Circuit. Jan. 8, 1913. 203 F. R. p. 42.)

#### 1. COURTS—APPELLATE COURT—ENFORCEMENT OF DECREE—MANDAMUS.

The Circuit Court of Appeals, having affirmed a judgment for complainant in a suit for patent infringement and remanded the case to the District Court for an accounting, had jurisdiction of a petition for mandamus to compel the trial court to overrule an objection to a master's summons requiring the defendant to render a sworn statement of account in accordance with Equity Rule 79 (New Rule 63, 198 Fed. xxxvii, 115 C. C. A. xxxii); it appearing that the effect of withholding the writ would be to deprive complainant of relief.

#### 2. PATENTS—INFRINGEMENT—NATURE OF LIABILITY OF INFRINGER.

An infringer of a patent is a trustee ex maleficio for the owner of the exclusive right protected by the patent, and as such is bound to account for profits.

#### 3. PATENTS—INFRINGEMENT—ACCOUNTING—DEFENDANT'S LIABILITY—EQUITY RULE—FURNISHING SWORN ACCOUNT.



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## MECHANICAL INVENTIONS

Patents for which have been procured through the Patent Soliciting Office of E. G. Siggers, Patent Lawyer, Washington, D. C.

William T. Chedester, Fort Worth, Texas. Drawer or Unit for Filing Cabinets.—The present invention is designed to equip filing cabinets with a slide or drawer adapted particularly to hold cards for card systems, and capable of exposing a portion of each of the cards, whereby a particular card may be easily and quickly found. The drawer or slide is equipped at both the top and bottom with card holding means, and thus its capacity is doubled. The device consists of a relatively thin drawer provided at its upper and lower faces with pockets adapted to receive the cards, and retaining strips hinged to the drawer at opposite sides thereof and located at the upper and lower faces of the same to hold the cards in the pockets. The drawer is reversible to arrange either of the pockets at the top.

John D. Henderson, Tucuman, New Mexico. Safety Razor.—The present invention is designed to provide a simple and practical single edged safety razor adapted to present the general appearance of an ordinary razor and foldable in a similar manner, the device being equipped with a guard for protecting the face of the user against injury, and adapted to be honed and stropped in the ordinary manner without taking it apart or affixing additional parts. The safety razor comprises a blade, a pivotally mounted guard arranged to oscillate across the cutting edge of the blade, and means for limiting the oscillatory movement of the guard and yet permitting an increased oscillatory movement of the said guard, so that the blade may be honed and stropped without removing the guard from the razor.

John A. Kline, Reading, Pa. Railway Rail.—The principal object of the present invention is to provide a railway rail of the compound type, wherein the rail is made up of several sections, and to arrange the sections so as to break joints with each other and thus provide a continuous tread upon which the wheels travel, thereby reducing to a minimum the jars produced by the passage of the wheels over the joints of the ordinary rails. The rail consists of a central member having a web, tread and base flanges, duplicate side members arranged on each side of the web of the central member and composed of a tread, a web, and a base flange, the base flanges of the side members resting upon and supported by the base flanges of the central member. The side members are interchangeable, and the tread of the rail is made up of a part of each of the three members.

Albert Klein, New York, N. Y. Non-refillable Bottle.—This patent covers a nonrefillable bottle adapted to prevent re-use of it except by the manufacturer or original owner of the same. It is equipped with a floatable indicating device adapted to remain at the surface of the liquid and to descend within the bottle as the contents are consumed, and thus indicate if a liquid has been surreptitiously introduced into the bottle. The bottle is adapted to remain in an upright position while removing its contents and until the indicator has reached the limit of its downward movement, and it may be re-used by the legitimate manufacturer

or owner without destroying or replacing any of the parts. The device includes a receptacle having an outlet at the bottom, an upright guide having ratchet teeth, and an indicating float slidable along the guide and provided with means for engaging the ratchet teeth to lock the float against upward movement.

Bertran Lauritsen, Twin Brooks, S. D. Latch for Sliding Doors.—This patent relates to a latch designed for use on sliding doors, such as barn doors, car doors and the like, the device being capable of securely holding a door in its closed position even when the same is swaying through the action of the wind or other disturbing means. The latch comprises a support, a latch member pivoted at an intermediate point to form front and rear arms, the front arm being provided with an engaging head, a relatively long rear spring mounted on the support and engaging the rear arm of the latch member for forcing the front arm inwardly, and a short front spring secured to the support and to the front arm of the latch member and constituting a yieldable stop for the same, and also supplementing the action of the rear spring when the front arm is forced outwardly beyond its normal position.

Daniel G. Munday, McAdoo, Pa. Shade and Curtain Hanger.—The shade and curtain hanger of this patent is adapted to be easily applied to and removed from a window, and is capable of being mounted thereon and readily adjusted to suit the width of a window shade, whereby the shade and curtain hanger may be secured to the window frame without measuring the distance between the devices at the opposite sides of the window so as to correspond with the width of the window shade. The device includes a support having a clamp composed of jaws, one of the jaws being arranged to form an attaching portion and having an opening to receive a fastening device, and a curtain supporting member clamped against the attaching portion of one jaw by the action of the other jaw.

Baillie T. Phelps, Natchitoches, La. Two patents. Adjustable Book Supports.—The first patent relates to a book support of that type wherein the book rack is adjustably clamped to a chair or other article of furniture, it being the aim of the invention to provide a book rack or support, which may be adjusted in various directions. The book support comprises a book rack, a standard, means whereby the rack may be adjusted at an angle to the standard, a crank shaped arm engaging with the standard upon one end of which the standard is mounted, and a clamp into which the other end of the crank-shaped arm is received and adjustably held, said clamp being adapted to engage an article of furniture.

The invention of the second patent is designed to improve the form of book rack shown in the first patent, and to simplify and reduce the cost of manufacture and to facilitate the adjustment of the book rack. The book rack comprises metallic bars bent outwardly and spaced apart at their central portions to form a longitudinal opening, and having their terminals bent laterally to provide book supporting arms, and approximately V-shaped bars secured to the said bars at opposite sides of the said opening and forming intermediate laterally extending arms. The supporting means for the book rack includes a tubular standard provided at its lower end

with serrations, an upper approximately crank-shaped rod having upper and lower pivot portions provided with shoulders and having serrations thereat, the upper tubular portion fitting in the tubular standard and the serrations of such tubular portion engaging with those of the standard, and a lower approximately crank-shaped tubular standard provided at its upper end with serrations and receiving the said lower pivot portion and engaging the serrations thereof.

Davis Sheen, Mayer, Texas. Windmill and Engine Coupling.—The object of the invention of this patent is to provide an easy operable coupling adapted for connecting the piston or plunger of a pump with either a windmill or an engine, or analogous motor. The coupling includes a casting designed to be connected with the plunger or piston rod of a pump, reciprocatory bars slidably mounted in the casting, one of the bars being provided with means for connecting the other bar with an engine or motor, a guide spaced from the casting and mounted in one of the reciprocatory bars and receiving the other and provided with an anti-friction device arranged to bear against the same, and means for connecting either of the reciprocatory bars with the casting.

Thomas W. Snoe, Alexandria, Ind. Handle Bar Grip.—This patent covers a handle bar grip, and the object of the invention is to enable the device to be easily applied to any bicycle without liability of becoming lost. The handle bar comprises a yoke overlying the open end of a handle bar and having arms extending longitudinally on opposite sides thereof, means for clamping the arms to the bar, a grip provided with oppositely arranged interior grooves receiving the yoke arms, and a fastening device for securing the grip against movement longitudinally of the yoke.

Robt. E. Tesreau, Bloomington, Ill. and Commodore P. Hill, Doe Run, Mo. Rail Joint.—It is the aim of the invention of this patent to provide a rail joint designed to dispense with bolts and nuts, and capable of effectually preventing the rails from breaking down at the ends and also avoid the noise incident to the passage of the wheels of a train over the ends of the rails. The rail joint comprises inner and outer splice bars or fish plates adapted to fit against the opposite faces of the ends of the rails, one of the splice bars being provided with integral horizontally projecting lugs having aligned openings, and the other splice bar being provided with openings to receive the lugs and having upright guard ribs arranged in pairs and located at opposite sides of the said openings and extending above and below the same and receiving the outer portions of the lugs between them, said ribs being of a width to project outwardly beyond the ends of the lugs to prevent the wheels of a train from striking the same should the wheels jump the track, and a locking bar passing through the said lugs and guard ribs.

Robt. E. Tesreau, Bloomington, Ill. L. F. Sundman, Doe Run, Mo. Metallic Fence Post.—The invention of this patent is designed to provide a fence post adapted to be easily and firmly placed in the ground without the necessity of digging a post hole, and equipped with means for the effective attachment of fence wires thereto. The device comprises a fence post provided along its face with a vertically

disposed slot, and having a plurality of substantially semi-circular grooves arranged vertically and communicating with the slot and forming intervening ribs, a transverse horizontally disposed rod positioned about midway in each of the said grooves to form a relatively narrow passage around the rod, a fence wire extending across the slot, and a staple adapted to engage said fence wire. The fence post has a shank provided with a double spiral thread adapted to enable it to be readily screwed into the ground.

Gandolfo Valenza, Trinidad, Colo. Wrench.—The invention of this patent is designed to provide a nut wrench capable of easy and rapid operation, and it comprises in its construction a shank having a fixed jaw and provided along one side with teeth, an approximately U-shaped sleeve slidably embracing the sides of the shank and extended beyond the same, a movable jaw provided with an extension fitted against the shank between the extended portion of the sleeve, a flat spring bearing against the extension of the movable jaw and arranged between the sides of the sleeve, a dog pivoted between the sides of the sleeve and maintained in engagement with the shank by the said spring, and an eccentric mounted between the sides of the sleeve and arranged to carry the dog out of engagement with the toothed portion of the shank.

Rev. James W. Wildman, Sanford, Fla. Folding Partition.—The invention of this patent relates to a folding partition designed for use in Sunday Schools, day schools and other places where private class rooms, booths, or other apartments are desired for a limited time, and it has for its object to provide a partition adapted, without disturbing the seats occupied by the several classes, to be easily and quickly arranged to form a plurality of separate and independent rooms, and capable of being compactly folded against the wall when it is desired to use the room for general exercises. The folding partition consists of a plurality of spaced brackets hinged at their inner ends to the wall of the room and provided with means for supporting side curtains, and a longitudinal rod pivotally connected to and joining the brackets at the outer ends thereof and forming a support for a front curtain.

Jacob Ziegler, Coffeyville, Kansas. Neck Yoke Center.—The object of the invention of this patent is to provide a neck yoke center adapted to be readily applied to and removed from a pole and having a limited upward and downward play directly on the pole, and provided also with a pivotal connection arranged to permit the neck yoke to play backwardly and forwardly in case the horses do not travel evenly. The neck yoke center comprises a pole receiving ring provided at its rear end with a flange projecting laterally from the ring around the periphery thereof and presenting a flat rear face, which is set at an inclination, and having a curved lower edge and a tapered upper portion merging into an approximately L-shaped arm, means for pivotally connecting a neck yoke to the said arm, a bar formed integral with the flange and spaced from the lower edge thereof and having a curvature coincident with the said edge, the ends of the bar being extended forwardly and connected with the flange to form a guiding loop for the stop flange of a pole in the usual oscillations of the pole receiving ring, and serving to restrict the longitudinal movement of the said ring on the pole.



## NEW PATENTS FOR SALE.

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**FOR SALE** outright—U. S. Patent No. 1,055,842, dated March 11, 1913. Magazine tobacco pipe. Best device ever invented for smokers. Cheap to manufacture. Will sell for reasonable price. Address, William W. Warden, Jr., Eads, Colorado. oct

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**FOR SALE**—Lamp Attachment. Patent No. 1,054,209, dated Feb. 25, 1913. Cash or on royalty, manufacture and place on the market. Address, Lenthil C. June, Hallstead, Pa. aug

**FOR SALE**—Patent No. 947,714. Barrel Cover Fastener. A great money-making proposition. Reason for selling, partner deceased. Address, Leclair Fastener Co., 105 Middle Street, Lewiston, Maine. aug

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**FOR SALE**—U. S. Patent No. 1,051,777, dated Jan. 28, 1913. Tube Swage. Has been thoroughly tested by Henry Endahl, Master Mechanic, of Oliver Iron Mining Co., in their shops at Coleraine, Minn. The steam hammer operator has swaged 125 tubes in one hour. Address, Albert J. St. Mars, Gold Butte, Montana. aug

**FOR SALE**—Fly Cupper. Patent No. 1,055,240, issued March 4, 1913. A most efficient device for clearing a house of flies. Several hundred may be disposed of in a few minutes without handling. Simple, inexpensive, and easily demonstrated. Address, E. P. Sutton, Ellsworth, Maine. aug

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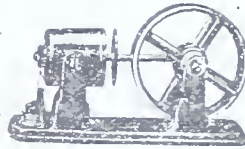
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## THE NEW PATENT OFFICE HEADS.

The President has appointed the Commissioner of Patents and the First Assistant Commissioner of Patents, and their nominations have been sent in to the Senate. Though not yet confirmed, there is no doubt that they will be. No known objection exists to their confirmation.

In appointing the new heads of the Patent Office, the President has followed the advice given in these columns. In our February issue we advised the President not to make the mistake of appointing some one within the Patent Office, and said that though it would probably be necessary to have one of the assistant commissioners appointed from the examining corps, "the head of the Patent Office and the dominating official of that bureau should be some one from outside the Patent Office, a man who is thoroughly familiar with the practice of the Patent Office and the abuses of such practice."

Mr. Thomas Ewing, Jr., who has been appointed Commissioner of Patents, is singularly well qualified to perform the duties of that office. Born at Leavenworth, Kans., in 1862, he is in the prime of life, and has all the qualifications necessary to make an ideal head of the Patent Office. He is the son of General Thomas Ewing, and a grandson of the late Hon. Thomas Ewing of Ohio, a former Secretary of the Interior. He has received degrees from the University at Wooster (Ohio), Columbia University (N. Y.), and Georgetown University (D. C.). For two years beginning with 1888, Mr. Ewing was an assistant examiner in the U. S. Patent Office. Upon resigning, he took up the active practice of law in New York City, as a member of the firm of Ewing & Ewing, and has since made a specialty of patent litigation. Mr. Ewing is president of the Current Literature Publishing Company, which publishes *Current Opinion*, a well known monthly magazine.

Mr. Robert T. Frazier, of Tennessee, who has been appointed Assistant

Commissioner of Patents, is fifty years of age. He graduated from the U. S. Naval Academy, but was mustered out with a number of class mates because there was no place in the service for them at the time. In 1887, he was appointed a fourth-assistant examiner in the Patent Office, taking the civil service examination, and was promoted step by step, reaching the position of first assistant examiner in 1893, when he resigned to accept the management of the Washington office of Howson & Howson, a well known patent law firm of Philadelphia, Pa. Later he severed his connection with that firm, and formed a partnership, styled Smith & Frazier. Mr. Frazier has had more Patent Office experience, and been more closely identified with Patent Office work than Mr. Ewing, because of his long residence in Washington. He is intimately acquainted with the details of the Patent Office administration, and his wide practice as solicitor of patents will enable him to be of great help to Mr. Ewing in carrying on the work.

We are glad to record that the President was able to find two men of such high class as Messrs Ewing and Frazier to accept the positions of Commissioner and First Assistant Commissioner of Patents. We believe that the appointment of the new heads will bring about improved conditions in the Patent Office.

That there is room for improvement is shown by the fact that in the report of the condition of applications under examination at the close of the business year ending July 12, 1913, over 27,000 applications were awaiting official action. There has not been a time within the last ten years when the work was so far behind. Just where the blame lies for this, we do not know. Apparently an increase in the force accomplishes very little good, for the force has been increased several times during the past five years, and the increases have not brought about any improvement in the conditions. We would be the last to urge an increase in the office hours, because the work of examining applications for patents is very laborious and exacting, and the present hours are long enough for a man to be engaged continuously in the work. We believe that if the practice of the Patent Office were modified to remove some of the causes for contention between the attorneys and the examiners, the business would be much expedited. Those examiners who delight in technicalities should be disciplined.

Take as an instance, requirements of division of applications, which have multiplied four-fold in recent years and are primarily intended to decrease the work of the examiners, though not based upon that ground. The unnecessary splitting up of applications has not helped the Patent Office in its work, but has only served to put unbearable burdens on inventors. The first thing that the new Commissioner of Patents should do is to eliminate or modify, as far as possible, all technical rules and practices, which tend to harass a worthy inventor in his desire to obtain a patent on the whole of his invention.

Another step which should be taken is to restore the civil service examinations *within* the Patent Office. Though an applicant is required to pass a civil service examination in order to be appointed fourth assistant examiner, the promotions to third, second, first and principal examiners are made without a written examination to determine the respective fitness of the different examiners. Just why these examinations for promotion were abolished has never been satisfactorily explained. We know that they tend to avoid any charge of favoritism and create a healthy state of rivalry within the examining corps. Of course, the examinations should be supplemented by efficiency records, and with the two as a guide, promotions within the Patent Office could be made with proper regard to the fitness of the examiners for advancement and without reference to their political affiliations. There is no tribunal under the government in which a civil service examination gives a better indication of the abilities of the employees, and we hope that the new head of the Patent Office will take prompt steps, upon his induction into the Office, to have the examinations for promotions restored.

The proposed plan to abolish the appeal from the Board of Examiners-in-Chief to the Commissioner of Patents, has been advocated repeatedly in the columns of the AGE. By making the Board of Examiners-in-Chief the appellate tribunal of the Patent Office, appeals could be taken from that tribunal directly to the Court of Appeals of the District of Columbia. There would then be no need of a second assistant commissioner of patents, and the money paid for his services in the past could be used to pay for another member of the Board of Examiners-in-Chief. The salaries of the members of the Board of Examiners-in-Chief should be raised to \$4500, and the number of members increased to five. With this change in the organization of the Patent Office, the Commissioner of Patents and the First Assistant Commissioner of Patents would be relieved from hearing contested cases, and would only be required to pass upon ex parte matters, and their time could be devoted to inaugurating the administrative reforms, which everyone concedes are necessary. Moreover, the Board of Examiners-in-Chief with its membership increased to five, would soon be able to catch up with its work. As it is now, they are practically four months behind in their hearings and several months in arrears in rendering the decisions after the hearings, but with the addition of two members, it is believed that it would not be long before prompt hearings and decisions could be looked for.

Possibly the most pressing necessity is the matter of room. The new Commissioner will find this a problem difficult to solve short of building an entirely new Patent Office, and he should enlist the earnest attention of the President and have him understand the urgent demand for a new building. Every one who visits the Patent Office comes away impressed with the necessity for some modification

in the present conditions. The examiners are in cramped quarters, and are so hampered in their work that they cannot render efficient service. It is believed that a new building with proper facilities and room would add twenty per cent to the efficiency of the present force.

These things however cannot be accomplished by the Commissioner of Patents alone. He will need the hearty support of every practitioner before the Patent Office, of every newspaper which is informed on the subject, and of every inventor who is interested in the proper administration of the patent business. To this end we advise as soon as the Commissioner of Patents takes the oath of office, which we understand he will do early in September, that letters be written to the Commissioner of Patents, Washington, D. C. urging him to take steps to have the work of the Patent Office brought up to date, and to members of Congress and the U. S. Senators, requesting them to lend their support to the Commissioner of Patents in his recommendations of improvements in that bureau of the government. If every one will do his part, we believe that the Commissioner of Patents will find himself so well supported on all sides, that he will not be obliged to talk in vain before Congress for the necessary legislation and appropriations, and that conditions within the Patent Office will improve to the great advantage of inventors and the general public.

## TRADE MARK NAMES OF PATENTED ARTICLES EXPIRE WITH PATENTS.

In the well known case of Singer Mfg. Co. v. June Mfg. Co., decided by the U. S. Supreme Court, it was held that where a name had become the descriptive or arbitrary name of a patented article by which it had become known to the public, upon expiration of the patent the name became also public property, and any one who wished to manufacture the patented article could do so and call it by the name given to the patented article while the patent was in force. For instance, any one can manufacture and sell a Singer sewing machine today and call it a Singer sewing machine, provided he puts his own name on the machine so that the public will understand that it was not made by the Singer Mfg. Co. The machine should be marked thus: "Singer Sewing Machine, manufactured by John Smith Mfg. Co."

Substantially the same legal proposition was recently brought before the Circuit Court of Appeals of the Third Circuit in a suit instituted by the Yale & Towne Mfg. Co., of Conn. against certain citizens of Pennsylvania to restrain them from the alleged unlawful use of a certain trade name, "Triplex", as applied to spur-gear hoisting blocks. The court in affirming the right of the defendants not only to manufacture the hoisting blocks, but also to mark them "Triplex," said: "The consideration which the public enjoys in return for the patent only begins when the patent expires, but when it does expire,



the invention and the designation by which, as a patented article, it has become known, passes into the general public right, subject, of course, to the limitation that the person who uses it shall so act as not to lead the public to believe that when buying such article they are buying one claimed by some other person, including of course the patentee." In other words, the defendant had a right to make the hoisting blocks because of the expiration of the patent based thereon, and he also had a right to call the blocks by the plaintiff's trade name "Triplex," but in giving defendant these rights, the court held that he should exercise them so that the public would not think that he was selling complainant's hoisting blocks, and that he should so mark the blocks that the public would know that they were of defendant's manufacture and not made by the Yale & Towne Mfg. Co. This is in strict accordance with the principles laid down in *Singer Mfg. Co. v. June Mfg. Co.* to which we have already referred.

#### Stopping Runaway Trains.

A unique construction designed to arrest the progress of heavy trains on a down grade, is to be found in North Carolina, on a section of the Ashville-Spartansburg line. The altitude is 2,200 feet, and the road runs for three miles, at this place, to a point 732 feet lower, the average grade being thus 244 feet to the mile. While the passenger trains, says *Popular Mechanics*, which are equipped with air brakes of sufficient capacity to make a runaway practically impossible, safely descend the grade, it is not so with the freight trains with their heavy cargoes of coal and old-style hand brakes, although four brakemen are employed on the downhill trip. Runaways are quite common, but their danger has been eliminated by the construction above referred to. There are no bridges nor tunnels on this section, nor any sharp curves, and it has therefore been possible to provide what might be termed landings, as in a staircase, on which the momentum of a descending train is spent before it continues its downward run. These landings consist of branch tracks, 1,200 feet long, running uphill at almost twice the grade of the main track, onto which a descending train may be switched should the engineer lose control over it or consider its speed too great for safety. The points where these tracks branch out are selected at slight curves of the main track, so that the downgoing train runs straight onto the safety track. There are two of these tracks,  $1\frac{1}{2}$  miles apart, and signs along the road indicate the distance to the nearest, so that the engineer has time to decide whether to let his train "take a rest" or not. The switch to the safety is always set, so that if an engineer wishes to pass the switch, he must signal to "open track."

#### Painting Under the Ocean.

There was recently placed on exhibition in Chicago, says the *Technical World Magazine*, a collection of what are undoubtedly the most unique paintings in the world. They are painted literally at the bottom of the ocean. The founder of the new school of art resides in California, and spends a

good part of each summer under the sea off the coast, depicting the creatures that inhabit the water. The artist, Mr. Pritchard, wears an ordinary diving suit with goggles, the helmet being connected with the upper air by a tube. He uses a drawing board made of glass and paper which has been soaked in cocoanut oil to make it waterproof. French waterproof paints and a heavy weight, to keep him at the bottom, complete his outfit.

Of course, the paintings are not completed under the water. The artist makes sketches, transcribing form, noting color, diagramming fish, feeling for the precise color harmony that can never be wholly brought from the depths. He then ascends to fix the scene enduringly in his studio. This he does on leather. On leather alone, he says, can the tone of the sea be reproduced. With what perfection the medium adapts itself to the subject, one must see to realize. It is almost unbelievable how the surface of the leather holds the pigments and gathers lights and depths, perfectly interpretative of deep water. On canvas the delicate blue, which in the sea takes the place of atmosphere, is lost. Instead of oil he uses powdered colored chalk mixed with spirits of resin, in proportions found best by long experiment. This mixture, besides being durable, gives the veil-like aspect that lies over everything submarine. This new world, he says, is a territory of quivering light and shade, or a profusion of strange colors, of plants of great delicacy, of mysterious sea creatures.

#### Across Africa by Airship.

More than one of the scientific dreams of Jules Verne have turned out to be prophecies. Just as his idea of the mysterious "Nautilus," a boat traveling in the depths of the ocean, has been fulfilled in the modern submarine, so his description of a journey across the Dark Continent in a balloon has been made a reality by the long flights made by French and Italian aviators over the Sahara desert. These flights have been so successful that it is now proposed to extend them and to make them part of a regular system. The suggestion has been made, and it is receiving consideration, to establish military camps at distances of 200 miles apart, between a station in Algeria and Timbaktu, in the Sudan, nearly fifteen hundred miles away. Under present conditions of caravan travel, it takes several months to make this journey. It could be easily accomplished in the air in three or four days. The aerial line is intended mainly for the carrying of mail. There is talk of extending it as far south as the Niger, and in fact there would seem to be no reason why other parts of the continent, now inaccessible and buried in the jungle, should not be reached by this means of transportation. Most of the hinterland of Africa is protected by a mass of almost impenetrable growth. Progress through these regions is very slow. It must be accomplished on foot, with baggage carried by natives, or by means of clumsy boats on the navigable portions of streams. People who are obliged to travel through this country are subject to excessive heat and moisture and often fall sick of fevers. It would be of great advantage

to have an aeroplane service for this lonely part of the world, and the practical difficulties would not seem to be insurmountable.

#### Making Clothes from Trees.

The evolution of clothing is an interesting study. Prehistoric man was arrayed in the skins of animals slaughtered for food, but there is no record as to the precise period when fibers were first employed for garments. Over four thousand years ago the Egyptians produced linen of great beauty, and the Swiss lake dwellers in the Stone Age in Europe—perhaps eight thousand years ago—spun and wove flax into the rude semblance of fabrics, specimens of which may be seen in the museums of today. Considering the great antiquity of the art of weaving vegetable filaments into cloth, it is somewhat remarkable that in many portions of the world there are even now races of men who know nothing of the arts of spinning and weaving, but clothe themselves from the natural cloth taken from the inner bark of certain trees.

Probably the best known of these natural tissues is the tapa cloth of the Polynesian Islands, which is derived from the mulberry. The stuff comes from the inner bark of the tree, and after being torn off in strips is scraped with shells soaked in water and beaten with a wooden mallet until it resembles a soft, flexible paper. The strips are then united by overlapping the edges and beating the fibers together until large pieces of the tissue are formed.

This bark cloth is in some respects a kind of paper, but it is as serviceable as cloth, since it is not easily damaged by water. The finished goods are often ornamented by printing, or rather rubbing. For this purpose designs in relief are carved on wood or built up of palm leaf cuttings, upon which the cloth is laid and rubbed with sticks of coloring matter, like crayon. This leaves an impression of the raised portion similar to that produced when a school boy rubs the impression of a coin into the fly leaf of his book.

This fibrous cloth is often beaten into strips thirty or more feet long. In the museum of the Kew Gardens in London is a fragment of tapa cloth which formed part of a piece made by order of the King of the Friendly Islands, which was one hundred and twenty feet wide and two miles long. No little skill was required in the preparation of this cloth, in order that it should be of uniform thickness throughout. When the break occurred in the tissue a piece of bark was laid on with a glutinous substance, and by beating all evidence of the damage soon disappeared. Some of these tapa cloths are as fine and white as muslin.

Banana fibre is also used in the manufacture of cloth. The stalk of young plants is steamed over caldrons of boiling water until soft. It is a simple matter to remove the green outer skin, by passing strips of the stalk through an instrument provided with a couple of blunt blades, which act as scrapers. The fiber thus obtained is placed in cloth and pounded to drive out excess moisture, and then cleaned and twisted into yarn. Banana

cloth is said to be well suited for tropical wear and to be very durable.

Other species of trees are employed in the same way in Africa and South America, the tissues serving in some cases not only for clothing but for blankets, carpets, etc. The *Apas* tree of India is yet more remarkable, as it yields not only natural cloth but ready-made clothing. The small branches supply the legs of trousers and the arms of coats, and the larger ones form the bodies. Sacks are made by leaving a disk of wood at the bottom, or by sewing across the bottom with thread in the usual way.

Several kinds of tree yield in their bark natural lace. The lacebark tree of the West Indies is the best known example. Its bark is made up of many layers of a delicate tissue, which when carefully stretched shows a mesh in every way resembling lace. It is recorded that Charles II received as a present from the Governor of Jamaica a cravat, frill and pair of ruffles made of this lace.

#### Electricity in Hidden Corners of the World.

One of the most unique examples of the confrontation of antiquity with modern science will be given when the pyramids of Egypt are illuminated by means of electricity. The Egyptian government has for some time been considering the feasibility of this plan. In this connection it may be noted that it has seemed to travelers an anachronism to use electric lights in the catacombs. The vaults of St. Calixtus, near Rome, have been lighted with thousands of electric lamps, filling the gloomy passages with a bright light, whose effect, as it falls upon the rows of bones and skeletons enshrined there, is said to be most startling and uncanny.

At least two places within the Arctic Circle are lighted by electricity. The long winter darkness is broken at Hammerfest and Tromso, which now have artificial daylight.

The most remarkable and romantic telegraph line in all America, is the Yukon wire. The route is almost parallel to the weird and abandoned survey of the Western Union half a century ago, when, after the breaking of the Atlantic cable in 1859, the company decided that it was, after all, impossible to keep up a service in the depths of the ocean, and determined to run a land service through Alaska and Siberia to Europe. Over three million dollars had been spent on the work when the Atlantic cable was picked up again, and labor was stopped. Some of the engineers were then so far inland that they did not receive the order recalling them until nine months after it had been sent. For many miles portions of this old wire are now used.

In roughly built cabins, from 17 to 50 miles apart, the operators live their lonely lives. Frequently they are called upon to don snowshoes and make dangerous tramps in order to repair breaks in the wire. The avalanches and forest fires are the worst foes of the service. For the thousands of men scattered from Prince Rupert to the Arctic Circle, this telegraph forms the only link with the great new events of the outside world. On the occasion of the prize fight at Reno, three years ago, the result was received at Dawson within four minutes of the end of the contest.



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 Peavey or cant hook.....A. Lambert  
 Pencil and pen holder and electric light, Combined vest pocket.....E. A. Metcalf  
 Pencil, hook, and card holder.....E. M. Chandler  
 Pens, pencils, and the like, Clip for fountain.....H. C. Mable  
 Perforating machine.....G. H. Davis  
 Perforating machine, Metal workers'.....M. J. Lenihan  
 Phonograph records, Making duplicate.....J. W. Aylsworth  
 Photographic printing device.....F. A. Brownell  
 Photographic printing mask.....H. E. Niles  
 Photographic screen.....W. C. Huebner  
 Piano players, Tempo regulator for pneumatic.....J. O'Connor  
 Pianos, Front panel for players.....M. Prisciantelli  
 Picture machines, Safety attachment for moving.....C. E. Morton  
 Picture molding, Metal.....B. M. Reynolds  
 Piling, Metal sheet.....C. H. Quimby, Jr.  
 Pin tumbler mechanism.....C. F. Kohlberger  
 Pipe wrench.....E. K. Jones  
 Pipes, Clean cut ferrule for drain or soil.....P. Mueller  
 Placards with sunk characters or imprints, Producing.....H. Flocks  
 Plasterer's implement.....C. A. Blee et al.  
 Plow handle mount.....T. M. Manning  
 Plumb bob.....E. E. Pipher  
 Plunger elevator.....T. J. Kirn  
 Pneumatic despatch tube receiving terminal.....B. C. Batcheller  
 Pneumatic wheel.....N. Peterson  
 Pocket guard.....C. J. Bukouski  
 Potato bug catcher and killer.....F. Sr., and F. Ulrich, Jr.  
 Power for use in vehicles, Transmission of.....J. C. Sherman  
 Power press.....J. Baurath  
 Power transmission and control mechanism.....W. W. Vosper  
 Primer.....C. A. Bailey  
 Printing machine.....W. M. Bacon  
 Printing machine.....W. Scott  
 Printing press inking rollers, Means for tripping.....H. Pearce et al.  
 Printing surfaces, Producing.....S. E. Dittman  
 Projector control.....J. L. Hall  
 Propeller, Boat.....A. Mayer  
 Propelling mechanism.....C. Oliver et al.  
 Pump.....W. U. Griffiths  
 Pump (2 pats.).....R. B. Carter  
 Pump and prime mover.....C. F. Nordmark  
 Pump, Centrifugal.....F. J. Petermoller  
 Pump, Centrifugal air.....F. J. Petermoller  
 Pump, Centrifugal throwing air.....F. J. Petermoller  
 Pump, Combined pneumatic lift and force.....F. O. De Hymel  
 Pump differential pressure governor.....W. V. Turner  
 Pump, Measuring.....L. D. Freeland  
 Pump operating mechanism.....H. W. Lupton  
 Pump unloading device.....E. H. Dewson  
 Punch presses and similar devices, Guard for.....K. Thulander  
 Quick adjusting wrench.....A. Carp  
 Radiator heater, Automobile.....L. H. Mayer  
 Rail anchor.....W. H. Winsworth  
 Rail, Compound.....C. H. Beasecker  
 Rail intersection.....F. P. Murphey  
 Rail joint and locking plate, Combined.....J. T., Jr., and J. T. Finley, Sr.  
 Rail shim.....H. C. Woodridge  
 Railway rail tie and rail fastener.....F. Holik  
 Railway signal.....C. Trahan  
 Rake and pitchfork, Combined.....P. B. Breeden  
 Range, Gas.....J. A. Alexander et al.  
 Ratchet wrench.....W. Winkle  
 Razor, Safety.....E. N. Humphrey  
 Razor, Safety.....C. G. Bluh  
 Razor strops, Swivel holder for.....L. H. Trieschmann  
 Receiptacle.....F. A. Stecher  
 Recording instruments, Pen arm adjusting mechanism for.....E. Hodgkinson  
 Relay, Reverse current.....E. B. Wedmore et al.  
 Resilient wheel.....H. Lafleur  
 Road making machine.....C. F. Keables  
 Rock drill chambering attachment.....J. B. Word  
 Roll ramming mechanism.....H. P. Macdonald  
 Roofing and the like, Metallic.....H. C. Ferron  
 Rope for haulage and other purposes.....G. Matricardi  
 Rope socket.....F. W. Shirey et al.  
 Rossing apparatus for removing bark from logs.....O. J. Mills  
 Rotary combustion engine.....C. H. Tangeman  
 Rotary engine.....W. H. Ogden  
 Rotary engine.....J. G. Quinby  
 Rubber compound.....E. von Vargyas  
 Rudders for the submersion and the navigation of submarine vessels under water.....C. Laurenti  
 Rule attachment.....R. Campbell  
 Safety device.....G. P. Knapp  
 Sand tempering apparatus.....J. W. Brown, Jr.  
 Sandpapering machine.....C. F. Haug  
 Sap collecting apparatus.....G. H. Soule  
 Sash holder.....E. C. Rodwick  
 Sash lock, Window.....J. Drysdale  
 Saw frame.....R. J. Lawrence  
 Saw handle, Detachable.....G. H. Knuckles  
 Saw set.....P. A. Olsen  
 Saw swage.....D. H. Ball  
 Scaffold.....C. E. Lillow  
 Scale.....O. L. Gordon  
 Scale, Eccentric balance computing.....E. Pierson  
 Scoring and other sheet working machine.....O. M. Hoch  
 Scraper and smoother, Combined.....F. J. Kolson  
 Scraper, Grading.....J. F. Thomas et al.  
 Screw plate.....C. C. Russell  
 Screw, Set.....H. C. Hart  
 Sealing wrapped packages, Device for.....W. Borchert  
 Seat or stool.....W. Groenendyke  
 Seasaw.....W. J. Donnenwerth  
 Separating machine.....M. W. Tebyrica  
 Sewing machine.....W. A. Mack  
 Sewing machine feed mechanism.....V. J. Van Horn  
 Sewing machine plate gage.....I. Levy  
 Shade holder.....K. J. Kornbau  
 Sharpener, Coal bit.....A. T. Upton  
 Sharpener, Razor.....C. Alter  
 Sharpeners, Carriage return mechanism for gang saw.....J. P. Hedstrom  
 Sheet metal working machine.....L. Baurath



MECHANICAL PATENTS.

## MECHANICAL PATENTS.



- Furnaces, Agitating or stirring device for use in mechanical roasting.....M. V. de Lammien
- Fuse for universal projectiles, Combination.....K. Voller
- Gaiter.....W. H. Weaser
- Game apparatus.....H. B. Palmer
- Garbage receptacle.....W. L. Lubbock
- Gas alarm, Escaping.....O. Casilli
- Gas burner.....F. J. Doyle
- Gas burner.....A. J. Boynton
- Gas generator.....H. Gademayr
- Gas generator.....W. Gregson
- Gas, Manufacturing.....C. R. Miller
- Gas purification, Regenerating iron oxides used in.....D. McDonald
- Gas synthesizing device.....W. Siebert
- Gases, Absorbing dilute nitrous.....H. Panling
- Gases of fuels, Recovery of by-products from.....A. Rottmann
- Gases, Separator for mechanical mixtures of.....J. L. Black
- Gaseous fuel mixer.....F. E. Bachman
- Gate.....J. Carroll
- Gear wheel.....J. Miller
- Gearing, Transmission.....J. H. Nanmann
- Gearing, Transmission.....H. Werner
- Gearing, Transmission speed reducing.....A. King
- Glass blowing machine.....J. Ran
- Glassware, Making hollow.....J. Rau
- Grain drill.....O. G. Rieske
- Grain drill.....E. R. Beeman et al.
- Grain drill.....T. Brennan, Jr.
- Grain for milling, Preparing.....J. L. Wilford
- Grain for milling, Preparing.....J. L. Wilford
- Grain steeping tank.....O. Winde
- Granulating machine, Forage.....W. L. Monroe
- Grape picking implement.....B. J. Cloes
- Grease cup, Compression.....C. R. Powers
- Grinder, Portable duplex.....R. H. Howarth
- Grinding machine.....W. A. Schmidt
- Hammer.....H. B. White
- Hand and air brake, Combined.....W. J. Clelland
- Hand drill.....A. E. Tinsall
- Harness hanger.....T. O. Frazier
- Harrow tooth.....R. P. Rutledge et al.
- Harvester, Stalk.....A. N. Hadley
- Hat brim heater.....M. Hersbkowitz et al.
- Hat fastener.....E. L. McHenry
- Hat pin attachment.....M. H. and B. H. Schmidt et al.
- Hat ventilator.....J. C. G. Bonney
- Hay, grain, &c., Covering for.....W. A. Kennedy et al.
- Head and face protector.....J. Mincher
- Heat exchange apparatus, Tubular.....C. H. Jaeger
- Heater.....W. F. Dewey
- Heating apparatus, Electrical.....H. W. Wicker
- Heating system.....O. A. Ross
- Heating system, Hot blast.....H. C. Mallory
- Heddle and heddle frame.....B. A. Peterson
- Hexabromindigo, Greenish blue.....A. Schmidt et al.
- Hide splitting machine.....J. H. Gay
- Holder for removable objects.....W. H. Semon
- Hook and eye.....M. L. Lee
- Hopper, Charging.....G. M. S. Taft
- Horse hoes, Wheel attachment for.....F. S. Woodman
- Horse rake.....E. Wick
- Horseshoe calk.....J. W. Miller
- Hot water and steam boiler.....J. P. Schaffer
- Hot water system.....D. W. and F. R. Daley
- Hub dust shield.....W. G. Bear et al.
- Hydraulic motor.....F. H. Grover
- Hydrocarbon burner.....F. J. Nee
- Indicating torque meter.....A. E. Gny
- Ingot.....E. Gathmann
- Ink wells, &c., Filler for.....J. W. Jacobus
- Insects and their eggs, Destroying.....J. W. Blosser
- Insulator.....H. R. Markel
- Internal combustion engine.....J. C. Pealer
- Invalid lifter and carrier.....W. A. Allen
- Ironing board and stepladder, Combined.....I. S. Gipe
- Ironing table.....C. Giblin
- Jig.....H. P. Altman
- Journal box.....J. W. Stephenson et al.
- Juice and pulp extractor, Orange and lemon.....F. S. Fiske
- Key ring and key retainer.....C. C. Messmer
- Keyhole closer.....G. Petersen
- Kiln.....E. R. Sutcliffe
- Knob fastener, Door.....O. N. Howerton
- Lace attachment, Shoe.....J. E. Rogers
- Ladle runner.....E. L. Ford
- Lamp, Alcohol.....C. Nelson et al.
- Lamp, Miner's.....S. N. Krieger et al.
- Lamps, Apparatus for repairing electric metallic filament.....O. Arendt et al.
- Lantern.....A. D. Craig
- Latch door.....N. Smith
- Latch, Gate.....P. H. Wilson
- Lath.....J. H. Leist
- Lathe.....H. J. Duncan
- Lathe.....F. H. Wicks et al.
- Leather, Treating iron tanned.....J. Bystron
- Legging and thigh covering, Combined.....E. B. Nathan
- Level, Spirit.....J. Scott et al.
- Lever lock, Gear shifting.....O. W. Hahn
- Life detecting apparatus.....P. J. Baekns
- Life preserver and pillow.....S. P. Edmonds
- Life saving device.....P. Bys
- Light shade.....R. E. Ewing
- Lightning arrester.....J. D. Hilliard, Jr., et al.
- Lightning rod.....J. Z. Cnrrutt et al.
- Line reel.....F. R. Jennings
- Linotype machines, Casting control mechanism.....A. W. Le Boeuf
- Liquid dispensing vessel.....J. Crawford
- Liquids from crushed ore products, Separation of.....W. A. Caldecott
- Loader, Magazine.....B. A. Peterson
- Lock.....E. W. Bassick
- Lock.....E. Schroeder
- Locket.....R. M. Ewing
- Loom.....E. Graf
- Locomotives, Apparatus for controlling the artificial blast in.....G. De Grahl
- Loom warp stop mechanism.....W. B. Monk
- Looms, Friction let off mechanism for.....A. J. Riley
- Lunch box.....J. F. Lamb
- Magnetic separator.....H. W. Freese
- Magnetic switch.....C. G. Miller
- Mail bag catcher and deliverer.....J. D. Leonard
- Mail bag collecting and delivering apparatus.....E. S. Priddy
- Mail boxes, Coin and mail holding device for.....J. E. Shinn
- Mail receiving and delivering apparatus.....P. Hettle
- Mantle retainer (2 pats.).....C. M. Brandt
- Matrix gaging and sorting mechanism.....F. H. Pierpont
- Mattress fabric, Spring.....C. L. Plunkett
- Mattress side guard, Spring (2 pats.).....A. J. Krenzkaamp
- Measuring instrument, Tooth.....S. Newman
- Metal expanding machine.....H. E. White
- Metal, Method of and machine for extruding (Reissue).....D. L. Summey
- Metal, Rolled.....E. R. Hoyt
- Metallurgical apparatus.....W. Bryant
- Metallurgy of iron and steel.....W. S. Simpson et al.
- Meter testing apparatus.....R. L. Dezendorf
- Mine cages, Safety appliance for.....G. E. Huttelmaier
- Mixing machine, Continuous.....J. Price
- Mold making machine.....H. R. Atwater
- Motion transmitting means.....K. Steinbecker
- Motor control, Electric.....P. N. Jones
- Musical instrument, Brass wind.....F. W. Todt
- Musical instrument guard.....A. Shutt
- Narcotics, Apparatus for administering.....G. Haertel
- Necktie case.....T. P. Forman
- Necktie shape preserver, Open ended.....A. Marcns
- Nursery chair, Sanitary.....L. R. Collier
- Nut lock.....J. O'Hara
- Nut lock.....H. Lehman
- Nut lock.....C. Ryan
- Nut lock.....C. A. Seekinger
- Nut lock.....T. A. Hookey
- Nut cracker.....W. N. Gradick
- Nut lock.....A. L. Shears
- Oil burner.....G. L. Hogan
- Ore separator.....G. W. Fisher
- Ore smelting and refining apparatus.....E. Fink
- Organ pipes, Tuning device for reed.....R. Hope Jones
- Package.....F. Emmons
- Package for materials liable to be injured by exposure.....W. Alexander
- Packing joint (2 pats.).....F. M. Prather
- Paint package, Ceramic.....F. L. Sleeper
- Paper bag holder.....F. D. Croce
- Pasteboard wrapper, Corrugated.....F. A. Antoni
- Pavement, Wood.....H. G. Jennison
- Peanut picker and pea huller.....W. C. Berry
- Pen, Fountain.....D. W. Schneble
- Phonograph brake and stop.....B. J. Genesey
- Photographic plate and paper developing machine.....E. S. Gerhard
- Photographic printing mask.....N. W. Carkhuff
- Pianos, Key rail for player.....W. A. Watson
- Pictures, designs, or ornaments, Producing.....F. B. Bannan
- Pipe couplings, Wrought metal ring for.....L. P. Whitaker
- Piston.....C. Y. Knight
- Pistons, Making hollow.....H. H. Patrick
- Planter attachment.....A. H. Burns
- Planter frame.....A. M. Crisman
- Planter, Peanut.....E. Knowlton
- Planting machine, Potato.....A. J. Pauly
- Plastic material and preparing the same.....F. G. Wichmann
- Plastic or elastic substance, Production of.....J. Stockhausen
- Plates, Dishing metallic.....J. S. Worth
- Pliers.....F. E. Culver
- Plow, Automatic adjusting.....J. A. Huggins
- Plows, Deep tilling attachment for.....C. S. Johnston et al.
- Pocket, Rule.....P. W. Tooth
- Pot for hot metal, &c.....E. C. Sherman
- Potato separator.....J. Renther
- Power drill.....W. Hartel
- Power wheel.....H. E. Osborne
- Preserving food, Process and apparatus for.....R. D. Elliott
- Pressure gage.....G. T. Hackley
- Primary battery.....E. E. Hudson et al.
- Print holder or drawing holder, Blue.....R. N. Smith
- Printing apparatus.....L. M. Todd et al.
- Printing press feed and delivery attachment.....S. W. Cortiszez
- Puller.....H. Harsey
- Pulp digester, Wood.....J. C. W. Stanley
- Pulp, Treatment of wood.....B. T. Nase
- Pulverulent substances, Treating.....G. Gobbe
- Pump.....F. H. Pierpont
- Pump, Rotary.....T. J. Johnson
- Pump valve, Pulp.....T. McOnat
- Push button switch.....H. Wischnusen et al.
- Puzzle.....D. Farnum
- Rail, Compound.....J. G. Campau
- Rail joint.....E. J. Slnsser
- Rail joint.....F. B. Marriott
- Rail joint.....H. B. Kaehn
- Rail joint.....J. Forsyth
- Rail support.....F. O. Hellstrom
- Rails to sleepers, Means for fastening.....A. Haarmann
- Railway rail.....E. Heronx
- Railway rail chair or support.....J. T. Andrew
- Railway rail joint and brace.....F. S. Jainett
- Railway signal system.....W. D. Nicknm
- Railway tie, Metallic.....W. Imhoff
- Range, Kitchen.....W. R. K. Stanford
- Razor blades or the like, Device for stropping or sharpening.....W. J. Myatt
- Razor, Safety.....B. L. Premo
- Razor stropping device.....J. F. Gan
- Reamer.....J. H. Osgood
- Receptacle, Single delivery.....J. Ratzlaff
- Refrigerator car.....J. P. Elmer
- Rifle range, target, and the like.....A. N. Whitney
- Rim, Demountable.....J. H. Champ
- Rock drill rotating mechanism.....C. J. Smith
- Rod or bar, Machine for severing uniform lengths from a.....F. H. Pierpont
- Rolling mill guide.....J. Kennedy
- Roofing.....G. Newton
- Rotary engine.....A. M. Condit
- Sad iron.....T. C. Prouty
- Sap gatherer.....E. J. Fillingim
- Sash fastener.....J. C. Griffin
- Sash fastener, Auxiliary bolt.....E. Troetel
- Sash weight.....J. M. Graybill
- Saw guide.....B. B. Register
- Saw, Portable power.....W. L. Hopkins
- Saw, Portable power.....T. O. Taggart
- Seales, Weighing scoop for.....D. Hobart
- Scraper, Self dumping.....M. A. West
- Scriber, Adjustable curve.....W. S. Weston
- Seat clamp, Detachable vehicle.....E. H. Kesselhuth
- Seleniferous and telluriferous substances, Preparation of.....A. and E. von Wassermann
- Separable fastener.....H. L. Beach et al.
- Sewing machine.....G. A. Kinder
- Sewing machine.....W. W. Singer
- Sewing machine needle loop take up.....A. H. Weis
- Shade and curtain hanger, Adjustable.....J. M. Carmean
- Shade bracket and curtain pole support, Window.....J. W. Anderson
- Shade, Window.....E. E. Carlson
- Shafts, poles, and the like, Tip for vehicle.....A. Woebor
- Sharpener, Knife.....G. C. Vollmer
- Sheet feeding device (2 pats.).....H. Y. Armstrong
- Sheet metal pipe.....B. D. Fudge
- Ship construction.....W. H. Didlake
- Ships' compartments, Apparatus for flooding.....J. L. and W. P. Brunton
- Ship's log.....T. H. McQuown
- Shock absorber.....H. H. Sunvold et al.
- Shoe polishing machine.....W. H. McConnell
- Side guard holding means.....A. J. Kreuzkamp
- Sign, Advertising.....J. J. Broderiek
- Sign holder.....D. A. Brumhangh
- Signaling, Electric.....F. W. Lyle
- Silicon, Manufacture of.....T. B. Allen et al.
- Silos and the like, Closure for exit orifices of.....E. Zuhlin
- Siphon head.....C. de Lukacsevies
- Skate, Roller.....T. Spacie
- Smoke consumer.....C. A. Rush
- Soldering iron.....J. F. Balkus
- Sound box.....P. Catneei
- Sound record molds, Making.....J. W. Aylsworth et al.
- Spark plug.....C. F. Johnston
- Spindle turning machines, Chuck mechanism for.....A. J. Schulte
- Spinning frames, Means for securing doffer supporting rails to.....B. A. Peterson
- Spinning machine traverse mechanism.....A. L. Pickard
- Spinning spindle (2 pats.).....C. H. Chapman
- Spool and needle holder.....R. H. Bennet
- Spring forming and tempering machine.....G. H. Beaumont et al.
- Spring switch.....F. H. Ellis
- Spring wheel.....B. Anderson
- Square, Carpenter's.....B. O. Swenn
- Sole for boots or shoes.....C. C. Small
- Sole rounding machine.....G. W. Carter
- Soles for boots or shoes, Preparing.....C. C. Small
- Stamping, punching, shearing, or similar machine.....F. H. Pierpont
- Starch drying apparatus.....L. P. Bauer
- Stay bolt for locomotive and other boilers.....E. I. Dodds
- Stay washer.....J. Kennedy
- Steam and water heater or boiler.....S. B. Waters
- Steam boiler.....E. R. Morrison
- Steam regenerating apparatus.....R. H. Stevens
- Steel ingots, Making dense.....H. W. Lash
- Step, Folding.....P. M. Engelhardt
- Stethoscope.....C. M. Root
- Stool, Milking.....F. A. Pelletier
- Stopper.....F. Evans et al.
- Stove, Combined heating and cooking.....M. Jones
- Stove lighting device, Gas.....H. C. Fritz
- Stovepipe fastener.....J. Stokes, Jr.
- Street sweeper.....J. Suszycki
- Strip applying machine.....G. E. Bissax
- Stump burner.....W. C. Beekham
- Stump puller.....E. A. Grunden
- Support, adjustable.....D. Sandberg
- Surgical basin.....C. W. Meinecke
- Sweat band, Detachable.....W. H. Mymms
- Swing seat.....B. G. Foster
- Swingletree hook.....W. E. Witt
- Switch throwing device.....O. Dmen
- Talking machine needle.....P. B. Rnggles
- Tar boiling apparatus, Portable.....J. T. M. Johnston
- Tea or coffee pot.....S. Sternau et al.
- Telephone exchange system.....C. A. Bals
- Telephone lines, &c., Exchange system for.....A. Lawrence
- Telephone lock out.....W. L. Campbell
- Telephone system.....R. C. M. Hastings
- Telephone system (2 pats.).....F. G. Agrell
- Telephone systems, Selecting apparatus for.....R. C. M. Hastings
- Telephones, Busy signal attachment for.....A. M. Beeler
- Telephonic receivers, &c., Diaphragm for.....A. Marr
- Telephony.....C. A. Bals
- Telephony.....S. G. Brown
- Telephony, Selective system of.....R. C. M. Hastings
- Thread treating apparatus.....C. S. Althouse
- Threshing machine feeder.....J. Hovey
- Ticket holder.....C. A. Bowles
- Ticket, Railway.....C. H. Cosgrove
- Time recorder and indicator.....H. T. Goss et al.
- Tinner's seam beating device.....F. Jones
- Tire.....W. A. Binion
- Tire.....S. Scognamillo
- Tire armor (2 pats.).....J. J. Bukolt
- Tire, Armored pneumatic.....W. R. Morrison
- Tire fastener.....L. G. Fleming
- Tire patching device.....G. J. Martel
- Tires, Device for shaping the outer casings of pneumatic.....G. W. Bell
- Toasting stand and fork.....W. H. R. West
- Tobacco wrapper counter.....D. Strasser
- Tongue support, Cultivator.....F. C. Hron
- Tool, Combination.....A. Bisko
- Tool drivers, Driving mechanism for spiral.....J. Nahlinger
- Tool holder, Multiple machine.....R. B. Craig
- Top bow clamp.....A. E. Thompson
- Torch.....J. Unser
- Toy castle building blocks.....O. C. Schwarz
- Toy pistol.....W. R. Atkinson
- Tracer.....J. T. Todd
- Track cleaning machine.....W. W. Lamb
- Traction engine.....O. M. Cox
- Traction engine.....N. H. Nelson
- Transmission device.....T. H. Williams
- Transmitter.....F. Kayser
- Transom draft gear.....C. S. Shallenberger
- Tripping device, Magnetically operated.....M. R. Rodrigues
- Trivet.....C. Nelson
- Trolley controlling device.....A. A. Grossarth et al.
- Tronsers stretcher.....C. O. Schneider
- Truck, Electric motor.....C. F. Frede
- Truck, Passenger car.....R. W. Brnnett
- Truck, side frame, Car.....A. L. Hastings
- Tubular structure.....J. L. Moore
- Turbine.....R. H. Rice
- Turbine blade.....C. N. F. Knappe
- Turbine diaphragm and nozzle construction.....O. Jnnggren
- Turbine, Elastic fluid.....G. Forner
- Turbine, Elastic fluid.....G. Westinghouse
- Turbine, Elastic fluid.....W. J. A. London
- Turbine, Marine.....F. Hodgkinson
- Turbine, Reversible.....H. A. McCulloch
- Turbine, Steam.....H. T. Herr
- Turbine supporting means.....F. Hodgkinson
- Twine holder.....G. L. Self
- Two cycle engine.....A. Winton et al.
- Two cycle motor, Valveless.....O. Deprez et al.
- Type casting machine.....F. H. Pierpont
- Type forms in a chase, Means for locking.....J. E. Hewett
- Type writer desk platforms, Latch for.....J. Vaaler
- Type writer support.....T. H. Boal
- Typewriting machine.....B. F. Frizzell
- Typewriting machine.....C. B. Corcoran
- Typewriting machine.....A. G. F. Knowski
- Typewriting machine.....R. W. Peery
- Typewriting machine.....A. W. Smith
- Typewriting machine.....J. Felbel
- Types in Semitic languages, Machine for the casting and composing of single.....F. H. Pierpont
- Umbrella, Folding.....J. F. McAllister
- Uniform, Protective.....A. M. Blackwell
- Union suit.....W. S. Elder
- Valve.....E. F. Osborne
- Valve.....A. Hansen
- Valve.....C. Spillan
- Valve dressing tool.....M. B. Skinner
- Valve for internal combustion engines, Rotary.....C. L. Cookson
- Valve for water gages, Safety.....J. Geisinger
- Valve gear.....C. B. Redrup
- Valve gear for two stage combustion engines.....K. Feilner
- Valve, Mixing.....W. J. Bergens
- Valve, Turbine.....R. H. Rice
- Valves, Tag for water pipe.....J. A. Cole
- Vapor generator and mixer.....E. R. Hnber
- Vaporizer and vaporizer burner.....A. C. and A. J. Behnke
- Vegetable cutter.....H. Plager
- Vehiele spring.....J. W. Moore
- Vehiele spring.....C. M. Waltz
- Vehiele top, Folding.....E. M. Staples
- Vehiele wheel.....M. S. Weist
- Vehiele wheel.....W. Downham, Jr.
- Vehiele wheel.....L. R. Grnss
- Vending machine, Envelope.....J. T. Stewart
- Vending machine, Stamp.....L. C. Peck
- Ventilator.....J. T. Mercier
- Vise.....J. L. Fisher
- Voting machine.....C. H. Ocmpangh
- Wagon, Dump.....C. D. Helle et al.
- Wall construction.....A. F. Meyer
- Wall, Reinforced block.....J. S. Banks
- Water closet.....A. A. and A. J. Bruder
- Water closet connection.....J. Podolsky
- Water motor.....G. S. Gillett
- Water of condensation, Apparatus for drawing off.....K. Muller
- Weed extractor.....J. D. Ellis
- Weighing machine, Automatic.....L. J. Snddarth
- Welding, Electric.....J. A. Heany
- Welding machine, Electric.....J. A. Heany
- Welding system, Electric.....J. A. Heany
- Wheel.....C. E. Fonst
- Wheels from sliding, Safety device to keep.....J. A. Gruber
- Whiffletree hook.....P. Johnson
- Winding machine.....E. R. Phillips
- Winding machine, Cop (2 pats.).....J. Hnnz
- Window locking device.....F. B. Bullman
- Window screen.....Z. Talbot
- Wire fabric machine.....G. W. Whittington
- Wire fastener, Line.....A. W. Morgan
- Woodworking or furniture, Instrument for.....E. Lobo
- Wrench.....W. S. Thomson
- Wrench construction.....C. C. Guernsey
- Wrench.....M. E. Crandall
- Wrench.....E. K. Righter
- Wrench.....R. C. Showalter



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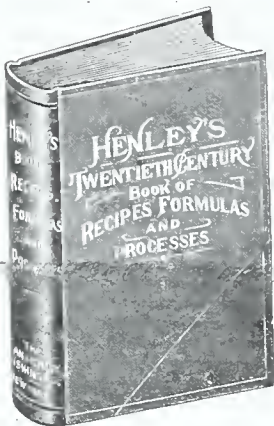
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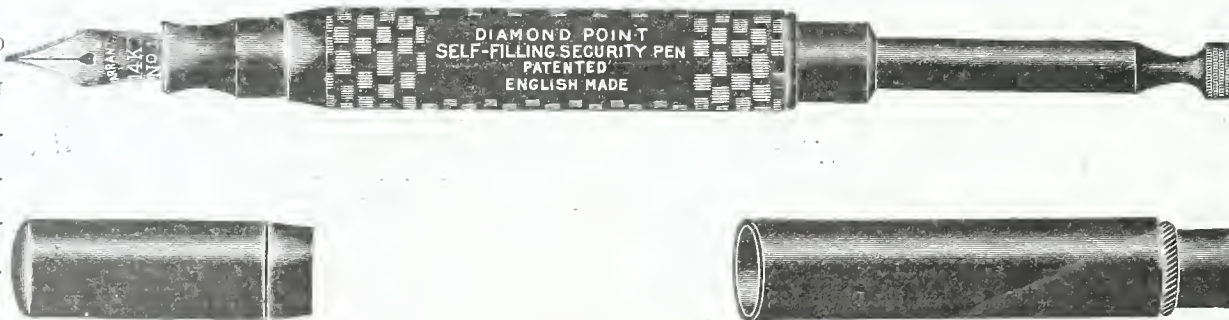
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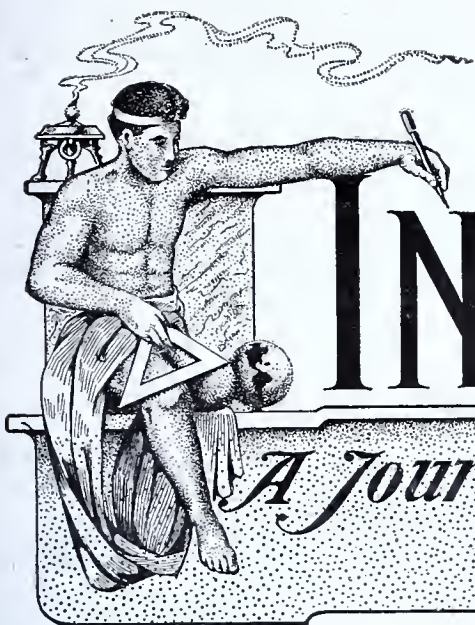
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## THE MAMMOTH LINERS EUROPA AND IMPERATOR.

By FRANK C. PERKINS.

THE recent arrival in our ports of the great Hamburg American liner Imperator lends interest to the accompanying illustrations. Fig. 1 represents its twin steamship Europa. Fig. 2 is an interior view of the Imperator, showing the swimming pool, which is a part of its luxurious equipment. Fig. 3 illustrates the mammoth rudder of the Imperator and the method of hanging the same. Fig. 4 shows the smoke stack. By looking at one end of the stack it can be seen how the latter is braced internally.

launched was the Imperator. The third ship is now under construction.

The Imperator was built with an inner skin, forming a double hull which is carried high above the water line. These hulls are constructed of heavy steel plates of unusual strength, and their object, of course, is to afford safeguards, in case of collision. Some idea of the Imperator's hull may be gained from the fact that more than 1,500,000 rivets, weighing two pounds each, have been used in her construction. As an additional precaution the

object at a distance of seven miles. The vessels are supplied with two crow's nests, the upper one being 170 feet above the level of the water, enabling the lookout to discern objects many miles distant. The huge liners are equipped each with 84 life boats, which will accommodate all on board. Two of these life-boats will be high powered motor boats, capable of towing the others. The motor boats are provided with wireless apparatus, working over a range of 200 miles.

It is said that the great size of these vessels has made possible the most complete system of bulkheads and water tight compartments ever installed on any ship. The bulkheads, which are both longitudinal and transverse, are of exceptional strength.

pletely flooded with water to test their efficiency under extreme conditions. On account of the unusual number and strength of these compartments, safety is more completely assured than in ships of smaller dimensions. The cabins of the Europa and Imperator will be the largest and most sumptuous of any ships in the world.

In order to assure maximum comfort for all on board, the Europa will carry only a few more passengers than ships of half her tonnage. Her public cabins compare in size and richness of decorations with the public rooms of the largest hotels in Europe or America. Several of her cabins are carried through two decks in order to raise the ceilings and lend an effect of artistic spaciousness.



FIG. 1.—S. S. EUROPA, 950 FEET LONG, 100 FEET BEAM.

The S. S. Imperator and its sister ship the S. S. Europa are now the world's largest ships. The Europa was launched at the yards of Blohm & Voss at Hamburg. The new liner was christened by Prince Rupprecht, under the direction of Prince Regent Ludwig of Bavaria, in the presence of a notable gathering. It is said that she will enter the regular transatlantic service in the spring of 1914. The Europa is the second of three sister ships. The first of these to be

steel plates were riveted together and the walls completed before the port holes were cut. This was effected by a new process, employing the acetylene torch.

For night service both the Europa and the Imperator will be equipped with searchlights of over 80,000 candlepower, the largest ever constructed, which will be carried high up on the foremast. These searchlights will be visible for thirty miles at sea and will enable the lookout to illuminate an

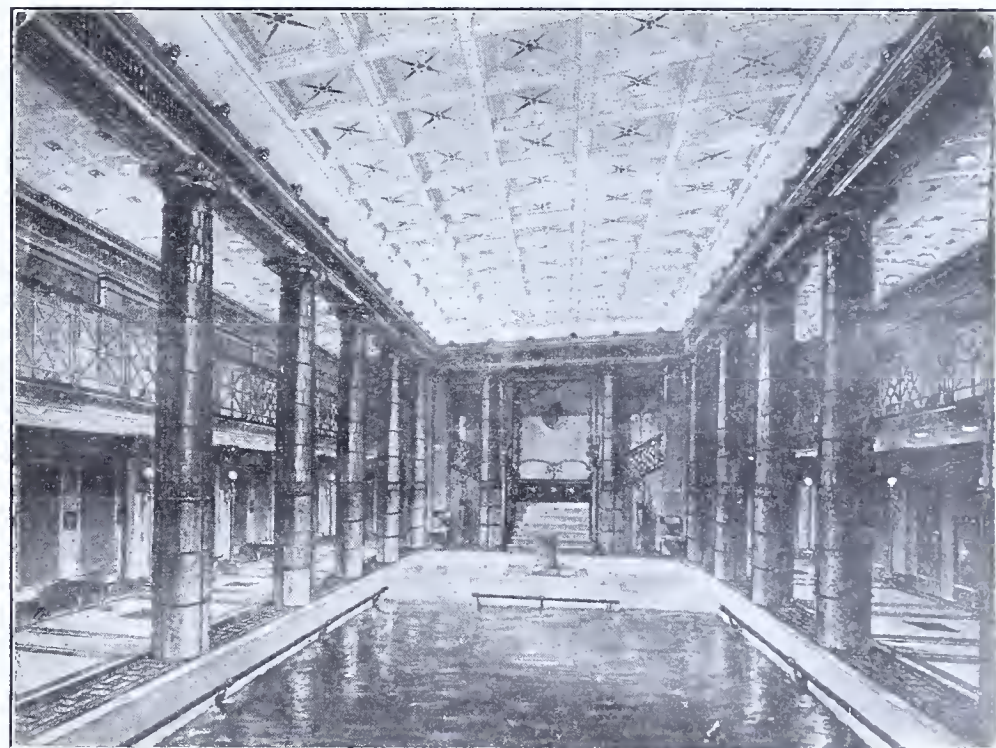


FIG. 2.—SWIMMING POOL ON S. S. IMPERATOR.

The communicating doors throughout the ships are controlled from the bridge. As a further safeguard, these steel compartments have been com-

It is pointed out that the Europa will be equipped with many original features, to lend new variety and luxury to the Atlantic crossing. All



suggestions of crowding have been completely eliminated. Special attention has been paid to the designing of the dining rooms on the new liner, as well as to the entire commissary department. The main dining saloon, which extends the width of the ship, occupying two decks, will accommodate the maximum number of cabin passengers. In addition there will be an elaborate Ritz Carlton restaurant, also a grill room, a veranda cafe, a

couches. Electricity is largely used throughout the ship. The staterooms are lighted and heated by electricity, while a special ventilating system assures plenty of fresh air. An intercommunicating telephonerunsthrough all the staterooms. Many of these rooms can be connected so that passengers may be supplied with extended private suites.

Some of the staterooms will have private bathrooms, there being more

pleasant conditions at all times when contemplating a plunge in the pool.

The swimming pool was built in accordance with the ideas and methods of the ancient Romans. The total length of the bath is 65 feet, and the width 41 feet. The pool within will be 39 feet long and 21 feet wide and 9 feet deep. The greatest depth of water will be 7 feet. There are 18 decorative Pompeian pillars which support the deck with its sunken clusters of lights, and also a gallery for visitors. The various dressing rooms are fitted with marble and bronze. The sea water in the pool will be constantly renewed through decorative cascades.

Adjacent to the pool will be comfortable rest rooms with spacious couches and wall decorations in the Pompeian style. Electric baths, massage apparatus, steam baths and hair dressing saloons with the most modern equipment will be provided.

A ball room, superbly appointed, the only other example of which now afloat is on the steamship Victoria Luise, will be the scene of concerts, entertainments and dances, which were formerly held on deck and therefore dependent upon weather conditions.

It will be seen that for the physical recreation and amusement of passengers the *Imperator* leaves little to be desired. First cabin passengers will have two large covered promenade decks. The upper deck will be enclosed in the front and along two-thirds of the length of each side by heavy-plate glass windows to shelter the passengers from the high winds. This deck will be 10 feet high and will vary in width from 16 to 23 feet.

The modern gymnasiums on the ship have been beneficially used by passengers of all ages, and for the first time at sea the second cabin will also be provided with a gymnasium. German gymnastic apparatus will supplement the electrically driven Zander apparatus.

A running track and squash court is connected with the first cabin gymnasium.

It is stated that the section of the funnels which extends above the decks is 69 feet in height, which would reach to the sixth story of an ordinary house. The largest locomotive in the world could readily pass through them, while a man standing beside one of them is completely dwarfed.

The rudder shown in the photograph weighs 90 tons and the stock on which it swings weighs 110 tons, but it is so delicately balanced and controlled that it may be swung from side to side with a touch of the wheel on the bridge, a distance of nearly one-fifth of a mile from the rudder.

It may be recalled that the *Imperator* is about 20 feet longer than the ill fated *Titanic*, having a total length of 900 feet, with a width of 96 feet, a tonnage of 50,000 and a displacement 72,000 tons. No effort will be made to urge the monster to unusual speed, but she will nevertheless not rank with the slow vessels. Her engines, which develop 70,000 horsepower, will propel her at the rate of about 26 miles an hour. She has nine decks above the water line, and will

accommodate 4,250 passengers and a crew of 1,000.

It may be noted that the *Imperator*, although recently launched, has already undergone a series of accidents, culminating in a fire, while at the New York wharf, which destroyed some of the interior fittings.

## BOOK REVIEWS.

### COMMERCIAL RELATIONS OF THE UNITED STATES

A concise volume, which contains statistics showing the foreign trade of each country of the world during 1911 compared with the previous year, has just been issued by the Bureau of Foreign and Domestic Commerce at Washington. This valuable publication shows the principal articles and their value entering into the trade of each country and the itemization of the imports from and exports to the United States. The statistics were prepared by American consular officers, and supplemented by other official data. In addition to trade statistics, the grain crops and mineral output of the principal countries are given, thus presenting in compact form the principal features upon which the commerce and industries of the foreign countries depend. The volume should prove highly valuable for reference purposes, having been revised and brought up to date so far as statistics were available. Copies of the book may be obtained from the Superintendent of Documents, Washington, D. C., for 35 cents each.

### EXPERIMENTAL WIRELESS STATIONS.

By PHILIP E. EDELMAN.

Published by the author, Minneapolis, Miss.

This book was written to fill a noticeable gap in the literature on the art of wireless telegraphy. It is intended particularly for experimenters, those who regard the art as more than a mere plaything. Wireless today offers opportunities perhaps not exceeded by any other art or trade. It is believed that this is the first book to give standard experimental designs in accordance with the new requirements. It contains full instructions for complying with the law, building and operating apparatus and stations, with simplified calculations, formulas and designs. The book, which is copiously illustrated, is written by an experimenter who knows just what the reader wants. It is a real "How it works and how to make it" book.

To keep themselves posted in the progress of the arts in which they are interested, inventors and manufacturers should subscribe for the *INVENTIVE AGE*, which publishes a list of all patents issued each month. The low subscription price and the character of the publication entitle it to the support of all the inventors of the country.

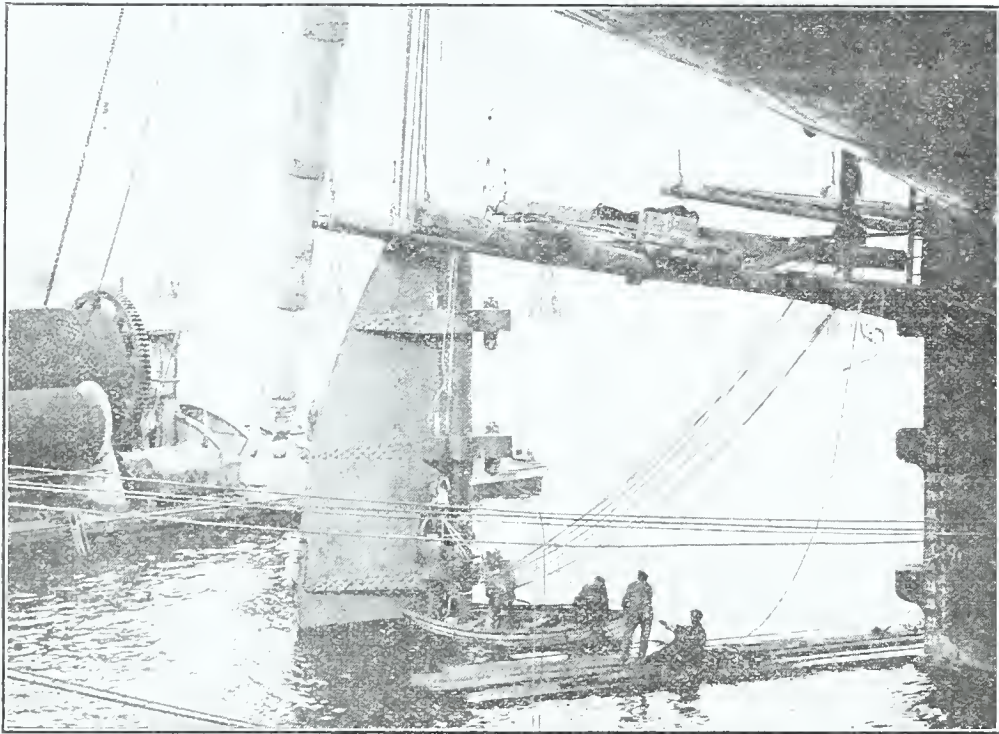


FIG. 3—HANGING MAMMOTH RUDDER ON S. S. IMPERATOR.

palm garden and a Vienna cafe. Several artistic private dining rooms will be available for dinner parties. In connection with the private suites there will be other dining rooms.

than 200 baths available in the first cabin alone. A surprising variety of special baths will be at the disposal of the passengers. Besides a Turkish bath with trained attendants, electric-

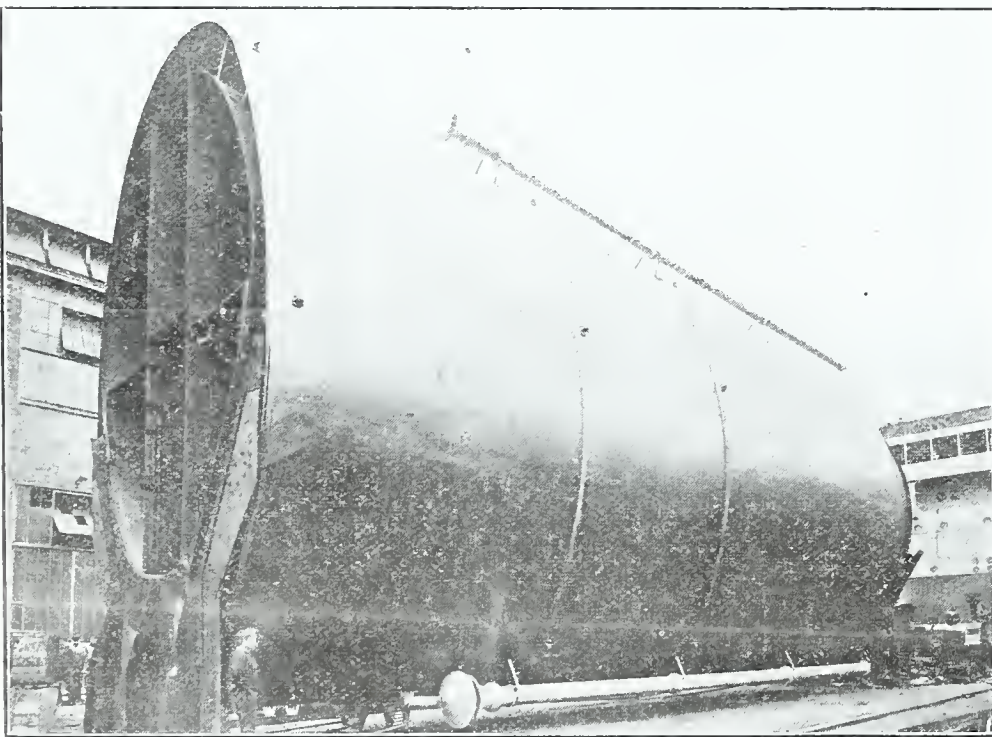


FIG. 4—SECTION OF SMOKESTACK ON S. S. IMPERATOR.

It is stated that the staterooms of the *Europa*, like those of the *Imperator*, will be unusually spacious. In order to produce a homelike appearance, the berths have been removed and each room is furnished with an artistic brass bedstead. The furnishing of the staterooms has been specially designed to afford every luxury of travel. In each room will be found a marble washstand with running hot and cold water, large mirrors and luxurious chairs or

light baths and special medicated baths, there will be a swimming pool as shown in Figure 2.

The installation and use of a swimming pool on the ocean steamer is dependent in a great measure upon the steadiness of the ship at sea, and the large dimensions of the *Imperator* assure this steadiness. In order to guarantee a smooth passage during rough weather, the well known compensating tanks have been provided, so that passengers are certain of



## TELEPHONES USED BY GERMAN POLICE.

The accompanying illustrations show the construction of some unique portable telephones of the Berliner type, utilized by the police of various German cities and constructed by the Telephone Fabrik Aktiengesellschaft. It may be stated that one of these types of telephones consists of a hand transmitter, the receiver being held in position by elastic bands on the head of the officer. Another form of instrument is so constructed as to hang about the officer's neck, the transmitter being just below the chin so that the hands are free for making notes of orders issued from headquarters or for help in reporting information to the police station.



Fig. 1.—Telephone in Operation.

Another design of pocket telephone has been devised which is used to great advantage by the municipal authorities in Berlin in both the police and fire departments. With the rapid expansion and large area covered by the German capital and other big European cities, there are many outlying districts which are made unsafe through insufficient policing. A partial solution of this problem is the adoption of the pocket portable telephones. Every police officer is provided with a pocket instrument and can therefore communicate with police headquarters, the fire department or the principal hospitals whenever he finds it desirable.

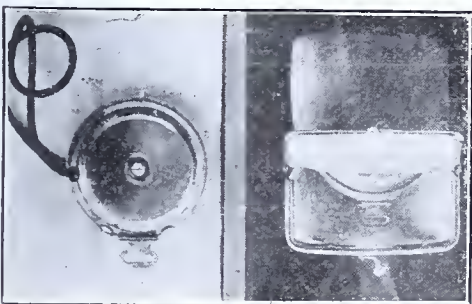


Fig. 2.—Telephone in and out of Case.

There are contact stations located in the parks, on the outside of buildings, fences and on the poles of the city streets, so that the police officers are always in touch with the city

authorities. These contact stations, as indicated in the photograph, Fig. 1, are located on lamp posts, walls, doors and other convenient places about 1000 feet apart. They are made weather proof so that moisture from rainstorms cannot damage the connections, the entire equipment being thoroughly insulated. In the business section of the city of Berlin there are several of these contact stations in nearly every block, and it is therefore as easy a matter to telephone as to post a letter at the mail box. The telephone is compact, the receiver and transmitter fitting into a small case, as shown in the illustration, the instrument being about the size of a watch and but a trifle thicker, weighing only a few ounces.

A similar pocket telephone has been brought out in the United States for common use. It is intended as a sanitary device so that every person may carry his own telephone transmitter and receiver if he desires. It is used by no one else, and therefore the owner is not subjected to the unsanitary telephones in common use.

## Making Moving Pictures More Realistic.

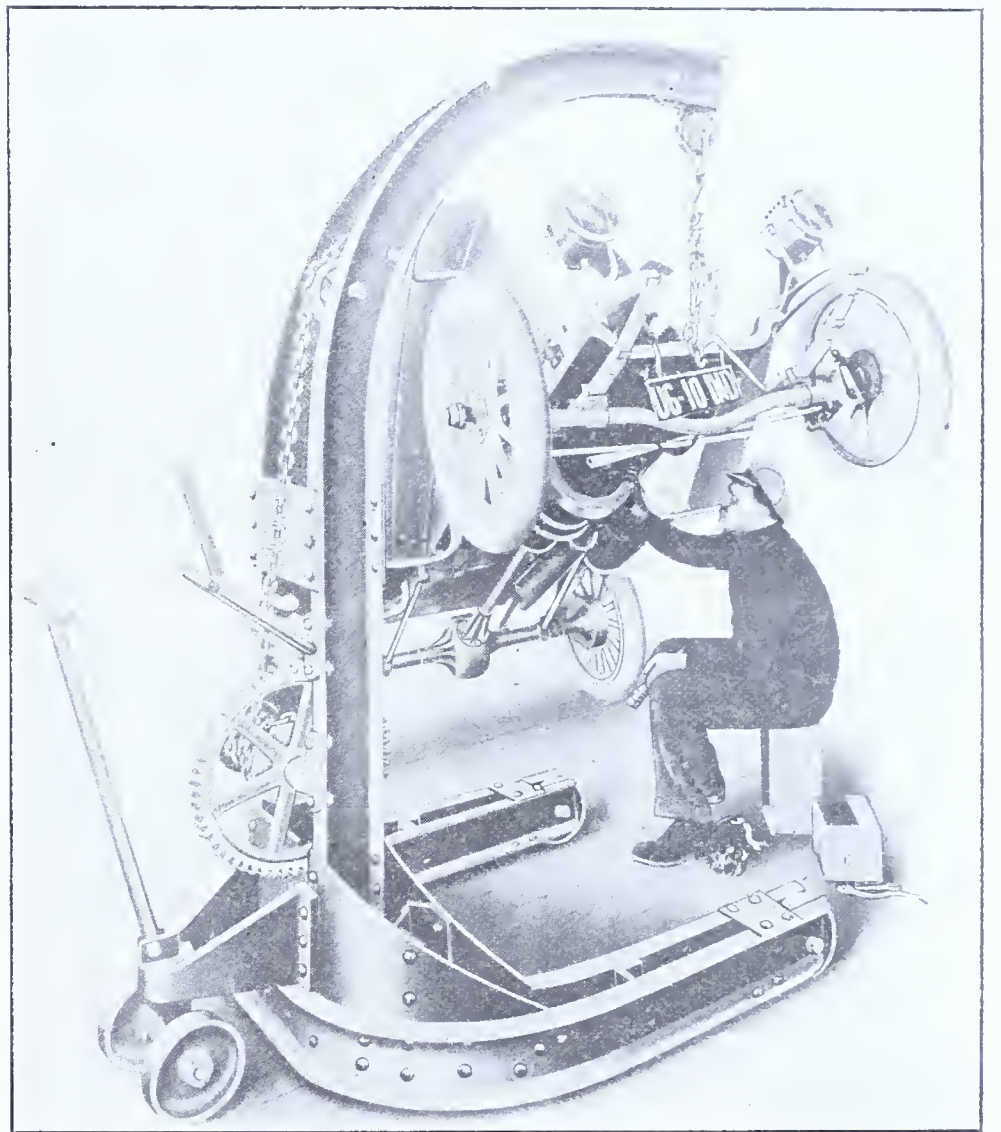
A combination of the ordinary cinematograph methods with the mirrors employed in what is known as "illusions," a stage device to deceive the eye of the audience, has resulted in a great advance in the realism of the pictures projected. The figures on the film are no longer obliged to keep close to the front of the stage in order to get the best results, but mingle with the scenery in the background. To effect this, two cinematographs are placed under the stage, and from these the images are thrown upon mirrors located a short distance beyond the front of the stage. These mirrors are inclined at such an angle that the images are reflected upward on an inclined transparent glass wall that forms the front of the stage. The scenery is illuminated by lights placed above the stage and screened from the view of the audience, while the light other than that reflected from the mirrors is allowed to fall on the glass wall. Of the strong light thrown on the inclined glass wall from the cinematographs, a sufficient amount is reflected to form distinct images, an effect due largely to the fact that the light strikes the glass wall at a sharp angle.

The optical illusion that makes the images appear to move amid the trees, etc. in the background is due to two causes: Since the figures are reflected from a transparent surface, they are projected so as to appear in their proper relation to the scenery. Two cameras, placed side by side, are used in making the pictures, just as two machines are used in projecting them, and this produces a stereoscopic effect. In making the pictures, scenery exactly like that on the stage is used, but it is painted black, as well as the background, so that the projected film shows only the players moving a black background. When the cinematographs are properly adjusted to the scenery on the stage, the figures therefore appear to move in a natural way among the accessories.

## PORTABLE STEEL GARAGE CRANE.

The accompanying illustration shows a portable steel crane, which is claimed to be one of the most practical labor saving devices that a garage can have. It not only saves time but conserves the strength of the men, relieving them of the exhausting work of tugging and lifting, and keeping them fresh for more skilled employment.

It is said that one man with this machine can do anything necessary with an automobile, without help, and it is never necessary to lie down and crawl under a machine. It may be stated that all the structural parts of this crane are steel, and as its strength does not depend upon cast iron it will handle the largest automobile in any way desired. It runs between the wheels in front or rear, going under the axle eight inches from the floor, and will lift and carry off any body. The wheels are all on roller bearings and it has two locks to the lifting winch, so that when one is working under a machine it is impossible for it to let loose. It is put together with steel bridge rivets, machine driven, and its lifting chain will not break under three tons.



The device weighs 900 pounds and will not tip over under any load, and it has the necessary range for the work. It is maintained that with this apparatus it only takes one man two minutes to get anywhere under an automobile with room to work, and it is unnecessary to have a pit in the floor. It requires 45 seconds for a man to move the crane from a position fifteen feet away from the automobile, hitch on to the frame, and raise it. He can also examine the under parts of a machine, tighten loose bolts and make adjustments without difficulty.

This portable steel garage crane is a complete hoisting and conveying machine. It is 8 feet 6 inches high and has 3 feet 6 inches overhang. The low wheels have a clearance of only 8 inches and all wheels are on roller bearings.

## Lengthening an Ocean Liner.

If a ship is too short, just cut it in two and put in an extra section to make it long enough. This apparently difficult feat has recently been accomplished in England with the "Marathon," a steel vessel 454 feet long and 55 wide. It is now over 500 feet in length, and can carry a much larger tonnage of cargo. The rivets were cut out by hand, and meanwhile suitable supports for holding the cut portions of the ship in position were laid beneath the hull. At the same time the extra

section which it was intended to insert in the middle of the ship was being prepared, all measurements having been previously made. When the rivets were cut, the forward part of the vessel was drawn away by block and tackle. The line of division was forward of the cross coal bunker at the fore end of the boiler compartment, the boiler, engines and machinery generally being left intact in the stationary part of the hull. The work of filling the gap proceeded rapidly, and the liner now has two smokestacks instead of one, and accommodations for about 30 additional passengers, besides greater freight-carrying capacity.

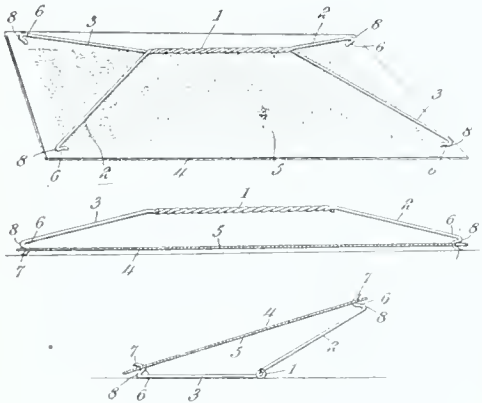


## CLEVER NEW PATENTS.

Fly Paper Holder.—Alarm Locks for Doors ---  
Darning Egg.—Carpet Beater.

### Fly Paper Holder.

Fly paper is a household necessity in the summer, as no matter how well a house is screened, flies will get inside. Particularly is this true in the country. The use of fly paper has certain disadvantages. A sudden gust of wind may blow it over on to the table or on the floor, and everything will become "stuck up." Attempts have been made to overcome this by providing holders for fly paper, and various patents have been granted on such devices.



One of the cleverest, if not the best device of this character that we have seen, has been recently patented by Edward E. White, of Brighton, Iowa, and is illustrated in the accompanying cut. The top view shows the device applied to a sheet of fly paper; the second is a sectional view illustrating how the holder is connected to the fly paper and showing the latter supported above the table; while the third is a cross-sectional view showing the holder inverted and the means for preventing the fly paper from adhering to any object.

In the cut, the sheet of fly paper is designated by the numeral 4, the coated side being marked 5. The device is made of two strands of wire twisted about each other intermediate of their ends to form a handle 1. Beyond the handle, the two strands diverge at each end, and the arms 2 and 3 are bent downwardly at a slight angle and directed outwardly so as to approach the corners of the sheet of fly paper. The arms 2 and 3 of the strands have their terminals bent or turned inwardly upon themselves toward a central point, as indicated at 6, and then turned outwardly and beveled at the ends in order to provide sharp points 7 to pierce the corners of the sheet of fly paper. The bends 6 provide shoulders 8, which prevent the corners of the fly paper from creeping up the arms, with the result that the paper is caused to remain in a taut position due to the tendency of said arms to exert a pressure outwardly from the

central point in a diagonal position.

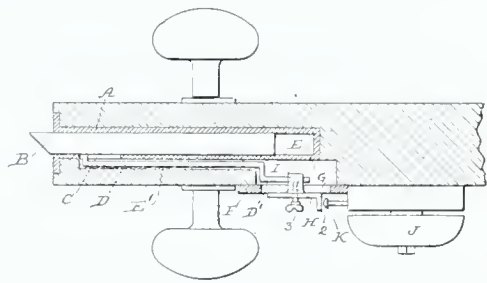
By reason of the fact that the handle 1 is raised above the surface of the fly paper, the device will support the paper in an elevated position, as illustrated in the last figure, in the event of the device being inverted through accident or the action of the wind. There is no necessity for touching the sticky side of the fly paper, and by no possibility can such coated side come in contact with the table or any object.

The device could be sold for less than five cents at a profit, and will efficiently perform the functions stated.

### Alarm Locks for Doors.

It is desirable in many cases to provide an alarm lock for doors which can be actuated by the turning of the knob, and the device patented by Oscar Clark and James Chapman, of Binghamton, N. Y., provides a very simple and efficient lock for this purpose.

The illustration represents a sectional view of an ordinary mortise lock with the alarm lock attached thereto. In the face of the mortise lock *A*, a slot *C* is provided; *B* is the ordinary bolt. A wire or rod *D* is connected at one end of the bolt *B*, passed through a slot *E* of the door and then back beyond the knob, the other end of the wire or rod being attached to a plate *H* by a set screw 3. A slotted plate *F* is mounted over the channel *E* formed in the door, and is provided with a slot *G* through which the head *I* of the plate *H* projects. This head constitutes the connection between the wire rod *D* and the plate *H*.



An ordinary spring bell *J* having a push button *K* is mounted on the door, this push button being arranged in close proximity to a lug 2 provided on the end of the plate *H*.

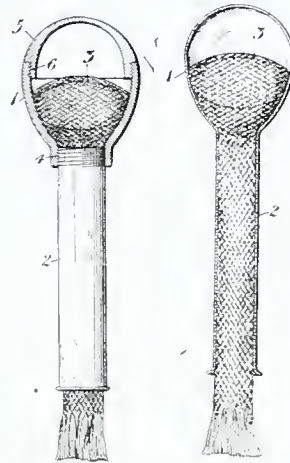
In operation, when the door knob is turned, the bolt *B* being moved backwardly, moves the wire *D*, and this in turn moves plate *H* which contacts with the button *K* and causes the bell to ring. When it is desired to put the bell out of action, the binding screw 3 is loosened, and the plate *H* moved backwardly away from the bell until it is out of possible contact with the button, and in this way the door can be opened without causing the bell to ring.

The device is a very simple attachment to accomplish the ends sought.

### Darning Egg.

The housewife will appreciate this simple, convenient and inexpensive article patented by Jesse B. Eiseman, N. Y. City. It is a darning egg made hollow and provided with a hollow handle so as to enclose the yarn and thereby be always ready for use. Two forms of the invention are shown in the cut.

In the figure at the top the device is made of a single piece, while in the lower figure, the article is made of three pieces. In the one piece article glass is employed.



In the construction shown, 1 designates the egg-shaped body and 2 the hollow handle. In darning, the sock will be drawn over the external face of the body in the usual way, and a single thread may be pulled out of the strand contained within the handle, and used in darning in the ordinary manner. The skein of yarn is bent over the core marked 3 about midway between the ends of the skein, and the ends are then passed through the tubular handle 2 so as to project a short distance therefrom. The skein, which is bent over the core, is retained within the egg by the core, the latter serving to hold the skein within the body and to prevent it from falling through the handle.

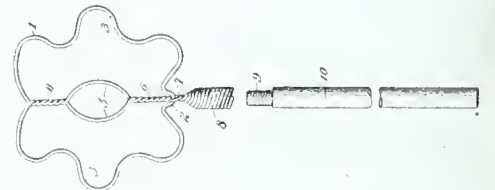
In the modified construction, the egg-shaped body 1 is made of two pieces, which enables the cover 5 to be removed and a ball of yarn placed within the egg, the end of the ball being passed through the handle. In

this form of the invention, the handle 2 would be made of glass, while the parts constituting the egg-shaped body would be constructed of a suitable metal.

The article can be made and sold for profit at a small price, so as to be within the reach of every one.

### Carpet Beaters.

Carpet beaters are desirable articles to have around the house in the spring and fall, when house cleaning is a necessary part of the work of every household. An efficient carpet beater is a labor-saving appliance. The device patented by Frank P. Johnson, of Danville, Pa., is certainly a simple, cheap and effective beater. As shown in the drawing, the beater is made of a single piece of wire of appropriate length. The wire is first formed with a short bend 2, and is then provided on each side of the bend with a series of return bends 3 to form the outer rim of the beating head. At the outer end directly opposite the bend 2, the wire is brought together and twisted as indicated at 4. It is then spaced apart to form the loop 5, and brought together again into a twisted portion 6. At this stage of manufacture, the two ends of wire are caused to engage the bend 2 and are then twisted to form a ferrule 8, adapted to engage the reduced end 9 of handle 10.



In this construction, the head being made of a single piece of wire with the loops 3 provides, in connection with the loop 5, an extending beating surface. The twisted portions 4 and 6 give the necessary stiffness, while the desired elasticity is imparted to the beater by the twisted ferrule 8. In this way a more effective blow can be delivered than if the parts were stiff and uneven. The device is exceedingly efficient and can be made and sold at a profit for a few cents, and would make a desirable addition to the catalogues of any mail order house.

# PATENTS

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## LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

HOUSER et al. v. STARR.

(Circuit Court of Appeals, Sixth Circuit. Feb. 14, 1913. 203 F. R. p. 264.)

### 1. PATENTS—INFRINGEMENT—DRAWING INSTRUMENT.

The Starr patent, No. 533,095, for a drawing instrument for drawing ellipses, claim 3, the main feature of which, and that which distinguishes it from the prior art, is the guide bar shown, held not infringed by an instrument which does not use such guide bar but the old substitute therefor.

### 2. PATENTS—CLAIMS.

That the patentee may have been entitled to a claim he did not make is immaterial. Courts cannot make claims for him.

### 3. PATENTS—CONSTRUCTION—USE OF TERM "SUBSTANTIALLY AS DESCRIBED."

The specification, claim, and drawings of a patent are a unite. Whatever parts of the device are named in a claim are of necessity intended to be named with reference to the specification and drawings, and the reference cannot be made narrower by saying "as described" nor broader by saying "substantially."

### 4. PATENTS—VALIDITY AND INFRINGEMENT—CUTTING INSTRUMENT.

The Starr patent, No. 683,809, for a cutting instrument, especially adapted to cutting beveled picture mats in curved forms, claims 1-10, 12, 14, 18, and 21, are void for lack of invention. Claims 11, 19, and 20 held valid and infringed, and claims 16 and 17 not infringed.

### 5. PATENTS—DOUBLE USE.

Where the thought of adapting a machine to a new use is not new, the mere use of common expedients for the adaptation is not invention.

### 6. PATENTS—AGGREGATION.

Where the action of one part modifies the action of the other part, there is more than a mere aggregation.

### 7. PATENTS—INVENTION—ADJUSTABILITY.

There usually can be no invention in making a tool adjustable on its carrier in four directions, instead of two.

### 8. PATENTS—VALIDITY—MACHINE FOR CUTTING CURVES.

The Starr patent, No. 766,158, for a machine for cutting curves, claims 9, 10, 12, and 13, held void for lack of invention over a prior patent to the same patentee.

### 9. PATENTS—DISCLAIMER—COSTS.

Where some claims are invalid, they must be disclaimed before a decree is entered on the valid claims. No costs can be allowed.

COMMERCIAL ACETYLENE CO. et al. v. SCHROEDER et al.

(Circuit Court of Appeals, Seventh Circuit. Jan. 7, 1913. 203 F. R. p. 276.)

### 1. PATENTS—TERM—EXPIRATION OF FOREIGN PATENT—ACETYLENE GAS TANK.

The Claude & Hess patent, No. 664,383, for an apparatus for storing and distributing acetylene gas, expired June 30, 1910, with the expiration of the British patent, No. 29,750 of 1896, to the same patentees for the invention; also held not infringed.

### 2. PATENTS—TERM—EFFECT OF INTERNATIONAL CONVENTION.

Article 4 bis, inserted in the International Convention for the Protection of Industrial Property of March 20, 1883, by the additional act of convention signed at Brussels Dec. 14, 1900 (32 Stat. 1914), as controlled and construed by Act March 3, 1903, c 1019 Stat. 1225 (U. S. Comp. St. Supp. 1911, p. 1453), "to effectuate the provisions" of such additional act of convention, was not retroactive, and did not extend the term of a United States patent, which under the law before the amendment was limited by the term of a prior foreign patent.

EXCHANGE SCRIP BOOK CO. v. RAND, McNALLY & CO.

(Circuit Court of Appeals, Seventh Circuit. Jan. 8, 1913. 203 F. R. p. 278.)

### PATENTS—VALIDITY AND INFRINGEMENT—SCRIP BOOK OF RAILROAD MILEAGE TICKETS.

The Richardson & Langston patent, No.

669,489, for a scrip book containing an improved form of interchangeable railroad mileage tickets, as to its main idea of expressing the units in money, instead of miles, was anticipated. Its other features, if patentable, held not infringed.

LAWSON v. METAL PRODUCTS CORPORATION.

(District Court, D. Rhode Island. Feb. 28, 1913. 203 F. R. p. 284.)

### PATENTS—INVENTION—GEM SETTING.

The Lawson patent No. 983,295, for a gem setting, having such ornamental extensions as may be made in box settings of the usual type constructed integrally with such setting, is void for lack of patentable invention.

CHEATHAM ELECTRIC SWITCHING DEVICE CO. v. TRANSIT DEVELOPMENT CO. et al.

(District Court, E. D. New York. Feb. 18, 1913. 203 F. R. p. 285.)

### 1. JUDGMENT—SUIT FOR INFRINGEMENT—PRIOR JUDGMENT AS BAR.

A judgment at law for infringement of a patent is not a bar to a subsequent suit in equity against the same defendant for other acts of infringement committed prior to the commencement of the law action, but not known to complainant at that time, and not included in the judgment.

### 2. JUDGMENT—SUIT FOR INFRINGEMENT—PRIOR JUDGMENT—RES JUDICATA.

A judgment for plaintiff in an action at law for infringement of a patent is conclusive of the questions of validity of the patent and infringement in a subsequent suit in equity against the same defendant for infringement by devices identical with those involved in the law action.

### 3. PATENTS—VALIDITY AND INFRINGEMENT—SWITCHING DEVICE.

The Cheatham patents, No. 612,702 and No. 917,541, for switching devices, held valid and infringed.

IMPERIAL BRASS MFG. CO. v. NELSON.

(Circuit Court of Appeals, Seventh Circuit. Jan. 7, 1913. 203 F. R. p. 484.)

### PATENTS—ANTICIPATION—COMPRESSION PIPE COUPLING.

The Burgess patent, No. 906,099, for a compression pipe coupling, held void for anticipation by a device in all practical respects the same, known and in public use prior to the application of the patentee.

SMITH v. FARBEFABRIKEN OF ELBERFELD CO.

(Circuit Court of Appeals, Sixth Circuit. March 4, 1913. 203 F. R. p. 476.)

### 1. PATENTS—SUIT FOR INFRINGEMENT—PRELIMINARY INJUNCTION.

Where a patent has been sustained in a number of contested cases, its validity should be assumed by another court for the purposes of a motion for a preliminary injunction.

### 2. PATENTS—SUIT FOR INFRINGEMENT—JURISDICTION—"REGULAR AND ESTABLISHED PLACE OF BUSINESS"—"AGENT ENGAGED IN CONDUCTING SUCH BUSINESS."

Defendant conducted a mail order drug business. He resided in Windsor, Canada, from which place he solicited orders in the United States, and he there received orders and remittances in payment therefor, but all of his goods were kept in a warehouse in Detroit, Michigan, to which place he imported goods in bond and there paid the duties. Such warehouse was in charge of an employee who received and stored and cared for all goods, and on instructions from defendant filled all orders and made all shipments. Held, that defendant had "a regular and established place of business" in Detroit, and that his employee there in charge was his "agent engaged in conducting such business" within the meaning of Judicial Code Act March 3, 1911, c 231, § 48, 36 Stat. 1100 (U. S. Comp. St. Supp. 1911, p. 149); that, where he sold and had shipped from his warehouse articles alleged to infringe a patent, he was subject to suit for infringement in that district under said section by service on such agent.

### 3. PATENTS—SUIT FOR INFRINGEMENT—JURISDICTION—SUIT AGAINST NON-RESIDENT ALIEN.

Since Judicial Code (Act March 3, 1911, c. 231) § 48, 36 Stat. (U. S. Comp. St. Supp. 1911, p. 149), vests jurisdiction of patent infringement suits in the District Court in any district wherein a defendant shall have committed such acts of infringement and have a regular and established place of business, and also, where defendant is not an inhabitant of the district, authorizes service on his agent engaged in conducting such business, the court has jurisdiction of such a suit, although the defendant is a nonresident alien.

MORGAN GARDNER ELECTRIC CO. v. BUETTNER & SHELburne MACH. CO.

(Circuit Court of Appeals, Seventh Circuit. Jan. 7, 1913. 203 F. R. p. 490.)

### 1. PATENTS—INFRINGEMENT—COAL MINING MACHINE.

The Rauscher patent, No. 574,822, for a coal-mining machine, covers a combination in one structure of two devices of the prior art, and is not infringed by one who made and sold such devices, unless it was sold with the intention that it should be used as a part of the patented combination.

### 2. PATENTS—INFRINGEMENT—FURNISHING REPAIRS FOR PATENTED MACHINE.

The manufacturer of a patented coal-mining machine, parts of which were subject to frequent breakage, who sold the same without restrictions, has no monopoly of the right to furnish repairs, or to replace such parts when broken, and another, who makes and furnishes the same on orders from the owner of the machine, is not chargeable with either direct or contributory infringement.

WINCHESTER REPEATING ARMS CO. v. OLMSTED.

(Circuit Court of Appeals, Seventh Circuit. Jan. 7, 1913. 203 F. R. p. 493.)

### 1. PATENTS—SUIT FOR INFRINGEMENT—PRELIMINARY INJUNCTION—DISCRETION.

While the granting or refusal of a preliminary injunction in a patent suit is within the sound discretion of the trial court, such discretion does not extend to a refusal to apply well-settled principles of law to a conceded or indisputable state of facts.

### 2. PATENTS—INFRINGEMENT—VIOLATION OF PRICE RESTRICTIONS.

Where the manufacturer of a shotgun, several parts of which were covered by patents, sold the same under contracts impos-

ing price restrictions on their resale, and both the validity of the patents and such restrictions had been acquiesced in by dealers and the public for several years, a dealer who, with knowledge of such facts, sells such guns at less than the price fixed by the maker, is chargeable with infringement.

MORGAN CONST. CO. et al. v. PORTER-MILLER ENGINEERING CO.

(District Court, W. D. Pennsylvania. Feb. 24, 1913. 203 F. R. p. 496.)

### 1. PATENTS—VALIDITY AND INFRINGEMENT—FURNACE FOR HEATING INGOTS.

The Morgan patent, No. 632,020, for a furnace for heating ingots or billets, covers a combination of elements, all of which were concededly old in the art; but the dominant feature of the combination, which consists in so arranging the fuel and air ports as to fix a zone of maximum heat at a certain point in the furnace and the construction of an inclined track with its apex in such predetermined zone, so as to quickly and automatically remove the billet therefrom for delivery at the mill with a minimum exposure to the air, was new, and, as so limited, the patent was not anticipated and is valid. It is not infringed, however, by a furnace which is so constructed that the zone of maximum heat cannot be predetermined, but is subject to variation.

### 2. PATENTS—INVENTION—FURNACE FOR HEATING INGOTS.

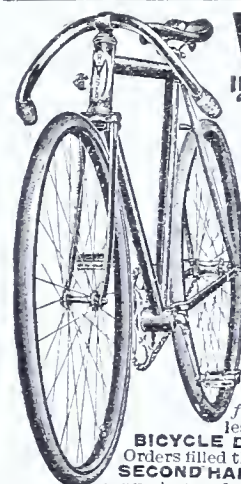
The Laughlin & Reuleaux reissue patent, No. 11,666 (original No. 582,476), for an improvement in a continuous heating furnace for heating billets or ingots, is void for lack of invention in view of the prior art.

MANTON-GAULIN MFG. CO. v. DAIRY MACHINERY & CONSTRUCTION CO.

(District Court, D. Connecticut. March 5, 1913. 203 F. R. p. 516.)

### PATENTS—VALIDITY AND INFRINGEMENT—MACHINE FOR INTIMATELY MIXING MILK.

The Gaulin patent, No. 756,953, for a machine for intimately mixing milk, by which all the butter globules are broken up and the milk homogenized, was not anticipated, and covers a pioneer invention; also held infringed.



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## MECHANICAL INVENTIONS

Patents for which have been procured through the Patent Soliciting Office of E. G. Siggers, Patent Lawyer, Washington, D. C.

William S. Wallace, Houston, Tex., inventor: Casper O. Daliel, Taylor, Texas, assignee. Fly Trap.—This patent covers a fly trap adapted to hold a bait for attracting flies, and equipped with means for caging the insects and for permitting the same to be easily destroyed when a sufficient number has been captured. The trap comprises a base, a casing attached to the base, a cage removably supported by the base and having an opening communicating with the interior of the casing, and a rotary bait carrying drum mounted within the casing and projecting therefrom and arranged to carry the insects from the exterior of the casing to the opening of the cage.

Gideon S. Adams, Seaville, N. J., inventor: Eureka Double Resilient Tire Co., Camden, N. J., assignee. Resilient Tire.—It is the aim of the present invention to provide a construction of cushion tire to take the place of pneumatic tires, affording the requisite resiliency, and at the same time providing a strong and durable construction, capable of withstanding the strains incident to its use on an automobile or other motor vehicle. The tire, which is constructed of solid rubber, is provided with an annular series of slots extending circumferentially around the tire and defining a highly resilient outer peripheral portion and an inner solid rubber cushioning portion which is adapted to receive and support the resilient outer portion and prevent the same from being injured when the tire is subjected to excessive abnormal strain. The tire is equipped with cushioning springs mounted in the slots and arranged to be compressed against cushioning seats located within the slots of the tire and extending partially across the same.

George W. Corey, Los Angeles, Cal. Window Screen.—This invention relates to a window screen equipped with means for enabling it to be readily applied to and removed from a window, and also for permitting it to be disconnected at the top from the window and swung outwardly so that flies may be easily driven out of the window. The screen comprises in its construction a frame provided with upper and lower longitudinal slots having entrances at their lower ends to permit headed fastening devices to be introduced into the slots for detachably securing the screen in position, the lower slots being longer than the upper slots, thereby permitting the screen to be raised sufficiently to disengage the upper slots, the lower fastening devices forming pintles for the screen when the same is swung outwardly at the top.

John H. Gentry, Greentown, Ind. Two patents. Valve Gear.—The first patent covers a valve gear adapted to secure a quick and full opening of the steam port early in its travel, and at the same time permitting the steam port to remain open a maximum length of time and of rapidly cutting off the steam at the end of the valve travel. The valve gear is capable of being easily reversed and of being hooked up at any point without interfering with the proper operation of the valve. It comprises in its construction an inverted reverse link pivoted at its upper end, an inverted radius link

connected at its lower end to the lower end of the reverse link and at its upper end with the eccentric rod, an upright link connected at its lower end with the radius link, and a bell crank actuated by the upright link and connected with the valve rod.

It is the aim of the invention of the second patent to improve the valve gear covered by the first patent, and to provide means for accelerating the valve motion and for increasing the travel of the valve to provide for lap, and also to produce a quick opening and closing of the ports without affecting the variable cutoff. The valve gear includes an inverted reverse link extending below the plane of the reciprocating eccentric rod, an inverted radius link pivotally connected at its lower end to the lower end of the reverse link and at its upper end with the eccentric rod, a rocker arm, an upright link connecting the rocker arm with an extension of the eccentric rod, and means for transmitting motion from the said link to the valve rod.

John A. Garey, Downs, Kans. Mold.—The object of this invention is to provide a mold designed for molding a base for telephone and other poles, and adapted to produce a durable base of concrete, artificial stone, or other plastic material, affording a maximum support with a minimum amount of material, the mold being easily handled in transferring the base from the place where it is molded to the curing shed and from the curing shed to the place of use. The mold consists of a fixed vertical core, a removable bottom section having an opening through which the core passes, and an outer shell carried by the bottom section and removable therefrom to permit the molded article to rest upon the bottom section while the plastic material is being dried. The outer shell is provided at the top with hinged bracing members, adapted to hold a reinforcing rod or tube.

Archie L. Grow, Beaumont, Kans. Sanitary Attachment for Bath Tubs.—It is the aim of the present invention to provide a bath tub attachment adapted to be readily applied to various bath tubs, and equipped with means for lowering and elevating a bather to assist persons in entering and leaving a bath tub, and adapted also to support a bather in an elevated position above the water within the tub, so that a spray may be used without waiting for the water to run off. The bath tub attachment comprises generally a vertically movable support, springs for maintaining the support in an elevated position within the bath tub, and operating mechanism for forcing the support downwardly within the tub against the action of the springs.

James R. Hodgen, Atmore, Ala., inventor. Two patents. George J. Crossland, Mobile, Ala., assignee of the first patent, and John Strickland, Atmore, Ala., assignee of the second patent.—The object of the invention of the first patent is to provide means for increasing the capacity and practically doubling the output of saw mills, by enabling lumber to be cut during the backward or return movement of a saw mill carriage. The appliance is adapted to be readily applied to any ordinary saw mill, and it is capable of maintaining the saw mill carriage and the lumber firm and steady during the backward or return movement, preventing the carriage and the material from being lifted or turned over by the saw, which during the backward or return movement of the

carriage strikes the material from underneath the same. The saw mill appliance includes a transversely disposed top block or member extending across the saw mill carriage and pivotally mounted at its rear end and having its front end arranged to engage the lumber at the upper end thereof, an operating table mounted on and carried by the top block or member, means for connecting the lever with the saw mill carriage, and means for locking the lever in its adjustment.

The second patent covers an attachment for steam engine governors. The ordinary steam engine governor fails to act quickly when increased load is thrown on the engine, and hence the power of the latter is checked and considerable time must elapse before it can attain its former speed. The object of this invention is to supplement the action of the steam engine governor when the engine is suddenly subjected to an increased load, and to operate instantly to increase the area of the steam passage, thereby maintaining a uniform velocity of the steam engine under all conditions and of correspondingly increasing the power of the engine. The governor attachment comprises a pivoted member having a pulley to bear against one side of a belt and adapted to be actuated by variations in the said belt, a rod carried by the pivoted member and extending longitudinally thereof, a slide adjustable along the rod, and connections between the slide and the lever of the governor.

Richard Johnson, Freeport, Illinois. Automatic Belt Guide.—The present invention is designed to provide a belt guide adapted to be actuated in its guiding movement by the belt, and to operate automatically to keep the pulley and belt in line and prevent the latter from running off the former. The automatic belt guide includes a fixed supporting frame, side levers pivoted at a point between their ends to the supporting frame and provided at one side of the pivotal point with means for receiving a pulley shaft, and a connecting lever pivoted at an intermediate point on the supporting frame and connected with the side levers to cause the same to simultaneously move in opposite directions.

Marion A. King, San Bernardo, Tex. Conveyer.—This invention relates to a conveyer designed principally for loading sacks of grain into wagons when the grain is threshed and sacked in the field, the conveyer being adapted to save time and labor in elevating the same from the ground. It is also useful for elevating and conveying sacks of grain from wagons into granaries, depots, warehouses, and similar places. The conveyer comprises a tiltable conveyer frame, a series of drive rolls mounted on the frame, a series of sprocket wheels connected with each of the sprocket wheels for simultaneously rotating the rolls in the same direction, and means mounted on the tiltable frame for actuating the sprocket chain.

Albert M. Porter, Amsterdam, Mo. Automatic Train Pipe Coupling.—The invention relates to an automatic train pipe coupling, designed for use on passenger and freight cars, enabling the same to couple automatically when the cars are coupled, and equipped with valves movable automatically to cut off the air, and adapted to be locked against such closing movement, so that in the event of accidental separation of the cars, the brakes will be automatically set through reduction of the pressure in

the train pipe. The automatic air brake or train pipe coupling comprises coupling heads provided with spaced forwardly extending arms, and having a similar arm located between the space opposite the said arms, whereby the coupling heads will interfit or slightly interlock. The coupling heads are provided with passages, which communicate when the parts are coupled.

Thomas P. Reed, Oklahoma, Okla. Attachment for Cotton Picker's Sack.—The aim of the present invention is to provide a practical device adapted to be readily applied to a cotton picker's sack to facilitate rapid handling of the same when weighing cotton in the field, and enabling a sack to be easily and quickly hung on the scales without liability of injuring the sack or the hands of the cotton picker. The attachment includes a plate having a stud to receive a portion of the fabric of the sack, and a hanger slidably connected with the plate and provided at its outer end with means for suspending it from the cotton picker's scales, said hanger having a loop at its inner end to clamp the sack around the stud. The device is adapted to remain on the sack during the cotton season without liability of becoming lost, and it will sustain the weight of all cotton that may be placed within an ordinary cotton picker's sack.

Abner Shirk, Casper, Wyoming. Wrench.—This patent covers a wrench capable of rapid and easy adjustment and adapted to operate on nuts, pipes, rods and the like. This wrench comprises in its construction a stock having a fixed jaw at its outer end and provided at its inner longitudinal edge with a tooth and having a fulcruming lug spaced from the tooth, a casing carried by the stock at the inner edge thereof, a relatively adjustable jaw cooperating with the said fixed jaw and provided with a shank extending through the casing and having teeth to coact with the tooth of the stock, and provided with a smooth portion to bear against the fulcruming lug, and a spring mounted within the casing and bearing against the shank for holding the same in engagement with the hook.

John Dempster, Knoxville, Tenn. Insect Trap.—This invention relates to an insect trap, designed principally for catching the black cock roach, which invests certain parts of the South. The trap is of shallow open construction so as to cause the insects to walk designedly into it, and yet effectually prevents the captured insects from escaping. The trap comprises a receptacle having a flat horizontal bottom, an upwardly converging imperforate wall provided at the top with a downwardly and inwardly sharply inclined smooth narrow flange, a platform supported centrally within the receptacle upon the bottom and arranged within reaching distance of the roach from the top of the trap, the said flange defining at its lower edge a central opening of a diameter slightly less than that of the receptacle and greater than the diameter of the platform, whereby the roach may pass over the interspace from the flange to the platform and from the platform to the bottom downwardly, but cannot pass from the platform to the flange upwardly. The trap enables the captured insects to be readily scalded or otherwise destroyed, and it permits the dead insects to be readily emptied from it.



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**FOR SALE**—Patent No. 1,059,007, dated April 15, 1913. Electric Burglar Alarm. Can be used more than one way. Please send for description. B. F. Sharp, 219 Chestnut St., Ambler, Pa. nov

**FOR SALE**—Patent on a little machine for washing cream separator disc. All washed at one operation. Will sell outright or on royalty. Address, H. G. Bemis, Riceville, Iowa. nov

**FOR SALE**—Patent No. 1,061,867, issued May 13, 1913. Those interested please make me an offer. Address, Mrs. Harriet Plager, Brock, Nebr. nov

**FOR SALE**—Valuable patent No. 1,062,819. Shade and Curtain Bracket. Owner wants to sell outright at a fair price. Has not the means to handle. Address, G. E. Cook, 901 S. Eleventh St., Herrin, Illinois. nov

**FOR SALE**—U. S. Patent No. 1,055,953, granted March 11, 1913. Hog trap. An apparatus for holding hogs or sheep during castration or operation. Address, 326 First St., Marysville, California. nov

**FOR SALE**—Cash. Patent No. 1,049,242, issued December 31, 1912. Combined mop bolder and wringer. The mop will perform any one of the three different operations at will and without any adjustment whatever, either as a mop, mop wringer, or scrubber. Walls and ceilings may be cleaned. Simply remove the scrubber. The mop has been thoroughly tested for seven months and has been enthusiastically received by every woman who has tried one. All offers considered. Address, J. W. Krueger, Litchfield, Minnesota. nov

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**FOR SALE**—Receptacle or container for containing plurality of different beverages with single faucet. Write, Joseph Vergans, No. 306 Wilson St., Santa Rosa, California. sep

**FOR SALE**—Patent No. 1,055,883. A steering and braking mechanism for sleds. Simple, efficient, and can be cheaply made and fitted. Address, Henry R. Curwen, No. 33 Linden Ave., Ingram, Pittsburg, Pa. sep

**FOR SALE**—U. S. Patent No. 1,055,618. Furrow Slicer. A plow attachment for leveling and packing the ground when plowing. Not necessary to harrow before seeding. Testimonials on application. Address, Robert Douglass, Lipton, Sask., Canada. sep

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**FOR SALE**—U. S. Patent No. 1,030,480. Hollow Concrete Wall Mold. Issued June 25, 1912. All offers will be considered. Address, F. H. Packard, Ceylon, Minn. oct

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**FOR SALE**—U. S. Patent No. 1,040,138, dated Oct. 1, 1912. Knife for scaling and cleaning fish. Better than anything in its line yet patented. Address, J. E. Buck, Spring Bay, Ont., Canada. sep

**FOR SALE** outright or royalty—Patent No. 1,051,461. Stove Pipe End-Lock. Locking joints and elbows rigidly together. Any boy can operate. Adds practically nothing to cost of pipe. Address, Albert C. Smith, Mocasine, Ill.

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**FOR SALE**—Lamp Attachment. Patent No. 1,054,209, dated Feb. 25, 1913. Cash or on royalty, manufacture and place on the market. Address, Lenthil C. June, Hallstead, Pa. sep

**FOR SALE**—Patent No. 1,023,436, dated April 16, 1912. Harrow. Will sell outright or on royalty. Embodies a new principle in harrow construction. Address, Martin Merkel, Celestine, Indiana. sep

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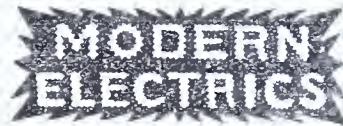
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## PATENTEE'S MUST MAKE THEIR OWN CLAIMS

It was the late Justice Bradley of the U. S. Supreme Court who said in a leading case "patentees cannot expect the courts to wade through the history of the art and spell out what they might have claimed but did not claim." This does not mean that a court will not construe the claims of a patent liberally, for every patentee is entitled to invoke the doctrine of "equivalents." It means, however, that if a patentee claims a certain element or combination, and it is found on examination by the court that the element or combination claimed was old, but that a different feature or combination was new, that the courts cannot recast or reconstruct the claim for the patentee.

Section 4888 of the Revised Statutes prescribes that the patentee "shall particularly point out and distinctly claim the part, improvement or combination which he claims as his invention or discovery." The statute thus definitely placing on the patentee the burden of stating his own claim, it necessarily follows that the court must accept the claim made by the patentee as the basis of his petition for a patent. One can, therefore, understand the reason why a patentee should be exceedingly careful in the drawing of his claims, and why only the best solicitors of patent should be employed to secure the patent. Many an inventor has lost a fortune or been defeated in his right to a well-earned monopoly of his invention, because of the indifference, the neglect or the incompetence of some attorney.

These observations lead us to call attention to a recent decision of the Cir-

cuit Court of Appeals of the Sixth Circuit, in which the court quoted the remarks of Justice Bradley, and stated in the case under consideration that "courts cannot make claims for patentees."

The patent before the court related to an instrument for drawing ellipses, and the record showed that the patentee was the first to make a construction whereby the pencil could be depressed by the hand of the operator turning the crank, and that he was entitled to a claim protecting broadly the capacity for vertical motion in the shafts, whereby the tool would vertically follow the operator's hand, but the patentee did not make such a claim in his patent. When the patent came before the court he asked the court to interpret the patent so as to make his claim cover something different from what was specifically expressed therein. As the court said "to permit the claim under such circumstances to be so liberally interpreted would be to make it of even more flexibility than indicated by Justice Bradley's familiar figure of the 'nose of wax.'"

The court made another ruling, which while not new by any means, is sufficiently important to be referred to. It appears that the claims ended with the phrase "substantially as described," and it was sought to give importance to this ending so as to modify the strict terms of the claims, but the court said: "The specification, claim and drawing are a unit. Whatever parts of the device are named in a claim are of necessity intended to be named with reference to the specification and drawings. The reference cannot be made narrower by saying 'as described,' nor broader by saying 'substantially as described.'"

It was the practice twenty or more years ago to conclude each claim with the words "substantially as described," or "substantially as set forth," or "substantially as and for the purpose set forth," or like expressions. A glance through any recent issue of the Patent Office Gazette, or an examination of patents issued within the last ten years, shows that these words or expressions have long since fallen into disuse. No one thinks of employing them. They are known to have no legal effect either in limiting or broadening the claims, and in the interest of brevity, if for no other reason, their use has been discontinued. Rarely do we find a court which will give any significance to these phrases, and as a general rule, most courts hold that they add no weight or limiting force to a claim.

## THE VALUE OF PRELIMINARY EXAMINATIONS.

It is surprising how many inventors, and patent attorneys as well, apply for patents without making a preliminary examination of the records of the Patent Office. In the case of inventors we can understand why this is so, for some of them do not know that an examination can be made which, in many instances, will determine the patentability of the invention. With attorneys, however, we have never understood why they decline to avail themselves of the information obtainable by a search of the records of the Patent Office before filing applications for patents for their clients.

The value of a search is two fold: First, if the invention is found to be anticipated, it saves the first government fee, not to speak of the larger expense of the preparation of the drawings and the attorney's charges; Second, if the invention is not anticipated by the search, the latter, if carefully made, will serve to reveal to the applicant, or his attorney, the best references likely to be cited against the application by the Patent Office Examiner, and by carefully drawing the claims, the application can be presented in a better and truer light.

Nothing prejudices an application more than the presentation of claims of such breadth as to indicate to the Patent Office that no attention has been given to the prior art. The information gained by a search of the records of the Patent Office should enable the applicant, or his attorney, to draw the claims so as to cover the exact difference between the invention submitted in the application and the previously-issued patents. By doing this, the labor of the Patent Office Examiner in examining the application is materially reduced, and what is more important, the application is expedited in its way through the Patent Office.

It is frequently the case that the Patent Office Examiner cites patents, which were either not noticed by the one who made the preliminary search, or were not considered pertinent. This is inevitable owing to the different viewpoints of the two persons making the examinations. The examiner of the Patent Office looks at the claims presented in the application, while the examiner for the attorney considers the invention both in its entirety and in the several specific features constituting the same.

It is not generally known that the percentage of inventions anticipated by the searches made by attorneys for their clients varies from thirty to fifty per cent. That is to say, any where from one-third to one-half of the inventions presented to attorneys by inventors are rejected as not being patentable, as a result of the searches made by the attorneys. That being the case, and attorneys will vouch for this statement, how foolish it is for either an inventor or an attorney to file an application for patent without having made a preliminary examina-

tion of the Patent Office records. Considering the small expense (most attorneys charge \$5), such neglect is inexcusable.

To be of any value, the search should be carefully made. There are a class of attorneys who offer to make free preliminary examinations. To do this, they must necessarily employ cheap help. Many of them get their assistants practically free of charge by employing young men who are willing to work for a few months in order to acquire experience. It stands to reason that an attorney who offers to make a free search must get his assistants to work for him as cheaply as possible. They cannot afford to pay \$10 to \$20 a week, which are the wages usually paid to good examiners. Indeed, it has been charged that some attorneys who advertise to make free searches, never take the trouble to examine the Patent Office records. They examine the invention and if it contains any supposedly novel point they take a chance on the invention and report it patentable without leaving their own offices. We believe this charge to be true of certain free-search attorneys. We know it to be a fact that most, if not all, the attorneys who propose to make a free search, employ the cheapest help, mostly boys out of high school, who are willing to work at a nominal price until they can acquire experience. When they get that, they go to other attorneys' offices who are able by reason of their higher class of work, to pay reasonable compensation for good men to examine the Patent Office records. In other words, the free search attorneys use their offices as kindergartens to teach the young how to make searches, and after they have acquired the experience, the young men go to the higher class of attorneys and obtain reasonable wages.

The best advice we can give our readers may be summed up as follows:—

First. Always have a search made of the records of the Patent Office, no matter how confident you may be that the invention is patentable.

Second. Always employ an attorney who charges for the search, for he is apt to make a better search than the one who offers the bait of a free examination, as the latter in order to make a fee must secure it in obtaining the patent. Therefore, a free search attorney is more likely to encourage you to apply for a patent than the attorney who charges for the search.

Third. Always insist on seeing copies of patents nearest to your invention. There are attorneys practicing before the Patent Office who refuse or neglect to reveal to their clients copies of the nearest references, fearing that by doing so their clients may decide not to apply for patents. In other words, they are afraid to disclose to their clients conflicting patents for fear of losing business. An honest attorney aims to give to his client all the information that is possible, and the best index of an attorney's honesty is the nature of the report furnished upon making the preliminary examination.

In conclusion, bear in mind that the



preliminary examination does not furnish conclusive evidence that the invention is patentable, though one would think so from the issuance of the certificates of patentability by certain attorneys practicing before the Patent Office. Such certificates are not worth the paper they are written on, as is evidenced by the fact that the attorneys who issue the certificates are the ones who lose more applications by rejection than those who simply state that the invention is believed to be patentable, without submitting any guarantees. The honest, conscientious attorney knows that he cannot guarantee anything when it comes to practicing before the Patent Office. The best class of attorneys, and they are the only ones to employ, never submit guarantees to their clients, and are not asked to do so, because their clients have sufficient confidence in them to accept their statements.

#### Transparent Metals.

Metals when cut into thin sheets and heated, are translucent. At a temperature of 550 degrees a sheet of gold leaf one three hundred-thousand of an inch thick allows white light to pass through it. A sheet of glass covered with an extremely thin layer of silver becomes transparent when heated. According to the *Literary Digest*, this phenomenon is manifested only in the presence of oxygen. It takes place neither in a vacuum nor in hydrogen. As there is no increase of weight, it has been supposed that there is produced a temporary combination of oxygen and silver which is afterward broken up. If, when the metallic layer has become transparent by heating, it be written on with an agate style, the characters appear in bright silver. Thin leaves of copper, heated in the presence of oxygen, become transparent, emitting an emerald green light that becomes darker as more oxygen is absorbed. Aluminum becomes transparent neither in air nor in oxygen.

#### Advertising in the Air.

The use of balloons for advertising purposes is not a novelty, but something new in this line has been invented by a Frenchman. He has constructed a number of balloons of 20 feet in diameter, and clothed them with translucent silk. They are covered with advertisements and sent up at night. They are attached to ropes about 500 feet long, and are lighted from within, so that the words and design on the cover stands out against the darkness in a weird but interesting manner. The balloons are lighted by electricity, the current being supplied by a cable running along the anchor rope. The balloons are filled with gas as usual, but it is said that it is impossible for them to become ignited. Even if the bulbs should break or the wires become short circuited, the inventor has arranged the interior that there is no chance of danger. A 500 candle power incandescent lamp is placed in each bag, and the space on the sides of the same is sold to advertisers at a good price, for the device is such as to attract the eye at night.

#### Sugar as Brain Food.

In the past century, says the *American Food Journal*, sugar production has been marvelously increased by the discovery that it could be obtained in commercially valuable quantities from materials other than the sugar cane and sugar maple trees. It is not surprising, therefore, that the consumption of sugar in food has also greatly increased, amounting in some countries to nearly 100 pounds annually for each individual, or in some cases two pounds a week.

Sugars are of several kinds, such as cane sugar, grape sugar, beet sugar, fruit sugar, and milk sugar, whatever their class or name they are all carbohydrates, or mixtures capable of being resolved into carbon and water. This fact seems to have an important bearing on their nutritive value.

It is largely due to the experiments of European and American investigators in the past few decades that the former prejudice against sweets as an indication of a perverted taste has been lessened, and the true function of sugar as a food element has been recognized, so that it is now considered a useful addition to the army rations of soldiers and to the diet of all active workers.

A sweetening material resembling sugar has been manufactured in Japan for the past 2,000 years. It is called ame, and is produced from glutinous rice, or glutinous millet, or even from common rice, Indian corn or sweet potatoes, by subjecting the starch which they contain to the action of diastase which converts it into maltose. This process seems similar to the physiological processes by which starch is modified by the digestive ferments, such as the ptyalin of the saliva, and the ferments poured upon it in the intestines which transform the starch into dextrose, which is a combustible material available for furnishing heat or muscular energy to the system.

The production of sweet materials resembling sugar are by no means limited to the vegetable world. They can also be produced from volatile hydrocarbons. One of these is saccharin, which is a benzene compound, and can only be taken in very small amounts.

The ordinary sugar in general use is sucrose or cane sugar. It is found in many vegetable juices and occurs in the stems and roots of all the grasses, especially in sorghum and in the gigantic jointed grass called sugar cane. Sugar cane is a native of Asia, having been used in China ages ago, but it was only introduced from China and India into Europe and thence to America a few centuries ago.

Sucrose is also found in the fleshy roots, such as the beet, carrot, turnip and sweet potato, but thus far it is only from the beet that it has been obtained in quantities commercially profitable. The beet root today yields by far the greater part of the world's sugar supply.

Sucrose is also obtained from the sap of trees, such as the date palm and the sugar maple, the yield of the latter being almost entirely pure cane sugar. Maize also contains cane sugar. The nectar of flowers and almost all sweet fruits yield cane sugar, and it is from such sources that the bee distills the cane sugar necessary for its honey supply.

The amount of cane sugar in fruits ranges from less than 1 per cent in lemons to 14 per cent in a certain kind of plums. Bananas contain 11 per cent.

Grape sugar, dextrose or glucose, is found in grapes and other fruits. Dextrose is the result of a process called inversion, which occurs when cane sugar, starch and similar materials are heated in a solution with dilute acids, or by some other way are made to unite chemically with water. This process reduces cane sugar to what is called "invert sugar," which is a mixture of dextrose and levulose.

Invert sugar is found to the extent of 2 per cent in large early apricots. Strawberries, gooseberries, raspberries and apples contain three or four times as much, while grapes and certain kinds of sweet cherries contain as high as 15 per cent of it.

It seems quite clear that it is not the sugar itself which is directly beneficial as food, as it is the products yielded by it on chemical decomposition, and these are carbon and water. Carbon is the building stone of nature and water its chief nutrient. It is natural, therefore, to find that tests in the German army maneuvers showed that 10 lumps of sugar per day prevented exhaustion, and on long marches appeased the hunger and mitigated the thirst, indicating the disintegration of sugar into water and carbon.

The real value of sugar seems to be that the carbon obtained from its disintegration is available for forming the gas known as carburated hydrogen or methane, which seems indispensable to the growth and respiratory processes of all living organisms. It is this gas which seems the primary one mainly emitted through the skin and lungs. When near the surface it is oxidized by the air into water and carbon dioxide, which are then eliminated from the system, and a part of its hydrogen may be nitrogenized, but a little study and observation will convince any careful student of their truth.

It is well known that the nitrations of hydrocarbons produces a series of powerful explosives, and that after any explosion the oxidized products show an increase in weight. Similar results seem to follow the minute cellular explosions by which the growth of the human body is effected. In the case of cellular explosions the necessary oxygen and nitrogen seem to be supplied by the proteids of food.

The beneficial use of sugar has been repeatedly tested with rowing clubs, men in athletic training, field workers, lumbermen, sailors, soldiers and others whose muscles are in constant use. It has also been found more or less useful to feed it to farm animals doing hard muscular work.

Sugar is a powerful antiseptic and germicide. In a concentrated solution

it acts as a preservative of fruits, vegetables and meats.

Even brain workers find it advantageous to add sugar to their diet. Many a doctor and professor, especially of the nondrinking class, is known to be excessively fond of candy, especially when doing hard or exhaustive brain work. The effect of eating sugar is felt in an hour or two, and it has even been recommended that students before an evening of hard study should eat a few lumps of sugar, for lump sugar is generally pure cane sugar. Even the simple lunch such as plain bread and butter, which may not attract a tired student, can be made refreshing and palatable by the addition of sugar sprinkled over it.

#### Motor Cycle Fire Truck.

We have had automobile fire trucks, and also motor cycles adapted for delivering merchandise and similar purposes, but the latest is a motor cycle fire truck. The machine is three wheeled, and has two seats, one for the driver and the other for the fireman. It has a fire extinguisher and hose, scaling ladders and a first-aid equipment. It can travel forty miles an hour, and has proved its practicality at a station in London, by rendering services before the arrival of the main fire fighting apparatus.

#### House Moved on Scows.

Lake Michigan has been proved an economical highway for house moving. The owner of a house on the lake front in Chicago wanted to transfer it to another locality three miles distant, also on the water. The moving operation, on land, would have cost more than the house was worth. So it was decided to utilize the water. The building, which is two stories in height, was moved over the shallow water along the shore by a pontoon bridge, and rolled onto two scows, which were then towed to the place desired. It took about three days of work to get the house onto and off the scows, although the lake trip was effected in less than an hour. The cost of operation did not reach \$1,000.

#### Gunpowder as Fertilizer.

Since the introduction of smokeless powder, the Navy Department found itself with a quantity of old brown powder on its hands, and with no way of utilizing it. Brown powder contains about eighty per cent of potassium nitrate, consisting of potash and nitrogen, both of which are constituents of fertilizers. The authorities at Indian Head, the navy proving station, wrote to the Agricultural Department and asked the experts if they did not want to experiment with the gunpowder as fertilizer. The offer was refused. Then the navy officials determined to use it themselves on the truck patch in connection with the proving grounds. Water was poured on the powder, and the concoction was worked into the ground. The result is reported to be most promising. The garden truck succeeded beyond all previous records. The plan is to be tried on a larger scale.



**A** CLASSIFIED list of Patents issued during the month appears in each issue of the INVENTIVE AGE. This keeps inventors and manufacturers posted in the art in which they are most interested.—We will send, postpaid, to any address, printed copies of any U. S. patent, with specifications and drawings, upon receipt of 10 cents per copy.—Please give correct data in ordering.—Address.

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Car-heating apparatus..... J. S. McWhirter  
Car journal box and lid..... J. P. O'Connor  
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Car, Railway ..... E. Posson  
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Carburetor ..... S. P. Smith et al.  
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Clock, Advertising ..... N. Weil

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- Abdominal exerciser ..... W. C. Schulze  
Acid arsenate of lead..... C. H. Hall  
Advertising device, Portable..... F. K. Wise  
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Agricultural implement..... H. B. Boenker  
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Decorticating machine ..... T. H. Tombyll  
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Driving mechanism ..... S. A. Bostwick  
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Electric machine, Dynamo ..... W. J. Foster  
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Electromagnet ..... F. W. Martini  
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Elevators, Fluid buffer device for ..... F. C. Furlow  
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Energy derived from rapid combustion, Utilizing ..... W. H. Smyth  
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Engine cylinders with explosive gas, Means for charging ..... O. M. Macker  
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Engine starter, Gas ..... C. H. Cuno  
Engine-starting mechanism, Internal-combustion ..... A. R. Curtis  
Engines, Auxiliary air-supply means to internal-combustion ..... A. C. Stewart  
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Excavator (2 pats.) ..... A. G. Bamsner  
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Explosion motor ..... C. Tecklenburg  
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Fastener for buttons and analogous objects ..... J. R. G. Siegrist  
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Faucet ..... D. Scanlan  
Faucet ..... W. A. Schmeikal  
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Feed-water purifier ..... C. H. Cort  
Feeder, Poultry ..... G. K. Gillette  
File-drawer compressor ..... E. G. Sampson  
File, Paper ..... I. Hilliard  
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Film indicating means, Roll ..... H. M. Engle  
Fireproof door and the like ..... G. Crossley  
Fireproof stair ..... G. W. Brooks  
Fishing rod, Telescopic ..... C. A. Tredwell  
Fishways, Drum screen for ..... H. B. Johnston  
Flies from buildings, Means for excluding ..... C. B. Gillespie  
Flying machine ..... D. Blaser  
Flying-machine-propelling mechanism ..... A. R. Nordstrom  
Flour-browning mechanism ..... J. Wallos  
Folding and stitching machine ..... D. J. Scott  
Folding table ..... J. F. Richardson  
Folding table ..... J. W. Campbell  
Food, Manufacturing cereal ..... H. D. Perky  
Friction let-off, Automatic ..... O. Dalfond  
Furnace ..... F. L. Bromley  
Furnace ..... H. N. Leask  
Furnace-feeding device ..... E. B. Miller  
Furnaces, Downcomer construction for blast ..... J. Kennedy  
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Game apparatus ..... J. H. Calisch  
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Game apparatus ..... H. W. Heller  
Game, Tempin ..... A. Ferland  
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Garment supporter ..... A. L. Abercrombie et al.  
Gas burner ..... M. W. Longfellow  
Gas burner ..... F. Minniek  
Gas or vapor electric apparatus ..... P. C. Hewitt  
Gas plant ..... C. L. Straub  
Gas, Producing ..... O. H. Ensign  
Gas, Producing (2 pats.) ..... O. H. Ensign  
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Gases of combustion from Portland-cement, lime and other kilns, Utilizing the waste ..... F. Schott  
Gaseous reaction by a silent discharge, Method and apparatus for producing ..... M. W. Franklin  
Gasoline engine ..... W. E. Haskell  
Gearing, Change-speed ..... J. A. Leland  
Gearing, Change-speed ..... H. A. Ryther  
Gem setting ..... M. C. Meyer  
Glass-making apparatus, Wire ..... C. J. Jungers  
Gold and other metals from sand, &c., Apparatus for separating ..... E. S. Hoyt  
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Grafting implement ..... L. Bruno  
Grain-drill attachment ..... M. Copeland  
Grinding or polishing machine movable on the surface to be treated ..... E. Offermann  
Grip, Hand ..... A. Youngs  
Hair curler ..... N. L. Ozmun  
Hair-cutting apparatus ..... R. Coyle, Jr.  
Hammer, Stamping ..... P. Graham et al.  
Handling cargo, Apparatus for ..... H. Sawyer  
Handling freight, Apparatus for ..... H. Sawyer  
Harrow ..... A. D. Willock  
Harrow riding attachment ..... L. E. Waterman  
Harvester ..... J. E. Gilson  
Harvesters, Grain cleaner for ..... R. Brown  
Hat ..... M. S. Twombly  
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Hat-pin attachment ..... F. Read  
Hat-pin-point protector ..... A. E. Kyllonen  
Hat-pin shield ..... E. R. Murray  
Hats in the rough, Making napped ..... H. W. Bates  
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Headlight ..... C. C. Bruff  
Heel-nailing machine, cementing attachment ..... E. A. Webster et al.  
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Hitching post ..... E. Engblom  
Hoist blocks, Bushing for the suspension plates of ..... J. G. Cline  
Hollow joint, Flexible ..... P. J. Bode  
Horse blankets, Construction of ..... L. H. Dietz  
Horse sling ..... G. W. Musselman  
Horse toe weight ..... C. B. Tuttle  
Horseshoes, Antislipping attachment for ..... W. G. Robertson, Jr.  
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Ice-making apparatus ..... L. Wolf  
Ignition device ..... T. Hubert  
Ignition systems, Interrupter device for ..... J. M. Smith  
Incubator alarm ..... C. W. Kelley  
Indicator ..... T. G. Fortune et al.  
Ironer for collars and cuffs, Automatic edge ..... L. R. Heim  
Ironing, Apparatus for straightening flat or other goods before ..... R. Gardner  
Jack ..... J. D. Bunn  
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Joint chair ..... J. L. Soarling  
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Knitting-machine attachment ..... H. H. West  
Lace holder, Shoe ..... J. H. Hess  
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Lamp base, Electric incandescent ..... P. G. Triquet  
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Land roller ..... L. E. Waterman  
Latch for end gates of mining cars and the like ..... I. K. Beaver  
Lathe, Thread-cutting ..... W. F. Andricks  
Lead arsenite, Making ..... C. B. Sprague  
Leather-board stock, Production of ..... A. L. Clapp  
Leather-molding machine ..... D. O. Nation  
Leather product and manufacturing the same ..... C. Brandt  
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Lighting and ventilating apparatus ..... J. O. Ulrich  
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Liquid separation of solids, Gravity ..... F. I. Dupont  
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Lock ..... S. R. Parkes  
Lock control ..... C. P. Burt  
Locomotives, Frame connection for articulated ..... H. H. Vaughan  
Loom for tying oriental knots ..... T. P. Walsh  
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Looms, Weft-partner device for ..... S. S. Jackson  
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Mattress frame ..... R. G. Marquardt  
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Meat-cutter indicator ..... E. W. Jones  
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Milking machine ..... R. Kennedy  
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Mine protective device ..... J. W. Reed  
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Music spools, Spindle for holding ..... H. J. La Joie  
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Oil burner ..... J. R. Pring  
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Oil burner ..... A. D. Marcotte  
Oil burner ..... W. T. Wood  
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Paving blocks, Treating ..... C. E. Fuller  
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Penholder ..... J. Forst, Jr.  
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Percolator ..... I. Blount  
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Power shovel ..... A. Offermann  
Power-transmission apparatus, Fluid ..... F. H. Summeril  
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Printing plates, Making ..... M. A. Droitcour  
Printing plates, Producing stereotype ..... A. L. Case  
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Pump head ..... F. M. Middendorf  
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Punching machinery ..... G. P. Thomas  
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Railway-train safety device ..... W. F. Greene  
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Razor-blade holder, Safety ..... E. James  
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Registering device ..... I. M. De Pny  
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Resilient wheel ..... A. Rosedale  
Resilient wheel ..... W. Lupton  
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Rod puller ..... J. H. Hooker  
Roll cleaner, Snapping ..... F. L. Jerome  
Ropes or cables, Ball-bearing connecting device for ..... G. John  
Rotary engine ..... E. F. Prall  
Rotary engine ..... J. Johnson  
Rotary internal-combustion motor ..... G. Muffy  
Rubber-heel-attaching device ..... A. B. Heimbach  
Rule ..... G. A. Quiros  
Rule, try-square and the like, Combined ..... W. C. Fox  
Ruler, section liner and protractor, Combined parallel ..... E. C. Holmes  
Safe and vault therefor, Disappearing ..... A. Plante et al.  
Salad-dressing-mixing device ..... A. E. Rosen  
Salt of hexamethylenetetramin and making same ..... A. Kircher  
Sanding machine ..... G. D. Trogdon  
Sanitary comb ..... S. P. Bronson  
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Saw guide, Rotary ..... J. L. Joyce  
Saw-guiding instrument ..... A. H. Koch  
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Scale ..... F. P. Dunn  
Screening machine ..... D. L. Kibler  
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Screw-cutting machine ..... F. Hirsch et al.  
Screw-cutting machine ..... F. Hirsch  
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Seat support ..... L. E. Waterman  
Securing device ..... E. E. Norris  
Selective system (Reissne) ..... E. R. Carichoff  
Self-locking bolt ..... C. Ryan  
Setting device ..... C. L. Mathews  
Sewing machine ..... W. A. Mack  
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Sewing machine ..... L. Onderdonk  
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Shedding motion, Pattern-controlled ..... W. Simmchen  
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Shock absorber ..... G. E. Shippey



Shoek-absorbing device ..... R. Herman  
Shoek loader ..... G. L. Lady  
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Shoe-knife ..... G. W. Gould  
Shoe-shining machine ..... R. R. McElhany  
Sign, Electrically-illuminated ..... J. M. Loughlin  
Siphon head ..... J. A. Schultz, Jr.  
Skid ..... J. A. McClure  
Sleeping bag ..... A. Fiala  
Slicer, Bread ..... W. H. Italy  
Slicing machine ..... G. Murl  
Smoke-consuming system (2 pats.) ..... E. G. Hatch  
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Soap ..... T. Anyon  
Socket construction ..... F. Barr  
Soldering machine, Can. .... F. G. Dickerson et al.  
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Speed-changing device ..... J. W. Edgar  
Speed-changing mechanism ..... G. D. Munsing  
Speed indicator ..... L. H. Dyer  
Spike ..... F. Wynne  
Spinning frame ..... H. G. Beede  
Spinning or twisting machines, Thread-support for ..... R. S. Matteson  
Spring ..... J. J. Newkirk  
Spring switch ..... C. A. Psilander  
Spring wheel ..... F. W. Bristow  
Stalk breaker ..... J. A. Marshall  
Stall-stop device ..... H. L. Ferris  
Starting switch, Automatic ..... C. D. Knight  
Station indicator ..... J. G. Evans  
Stave-forming machine, Barrel ..... F. M. Kennedy  
Steam boiler ..... M. W. Sewall  
Steel and iron surfaces, Treatment of ..... W. S. Simpson  
Stencil holder ..... H. P. Elliott  
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.....H. Tegtmeyer  
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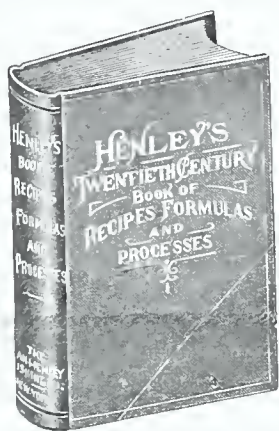


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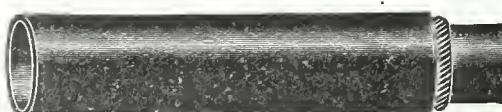
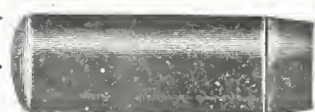
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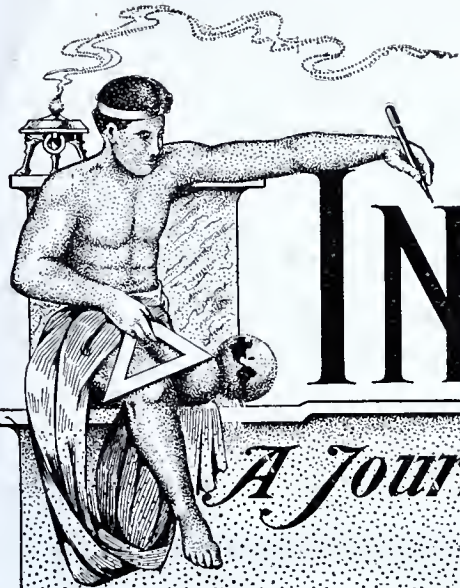
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## THE NEW HEADS OF THE PATENT OFFICE.



HON. THOMAS EWING, COMMISSIONER OF PATENTS.



HON. ROBERT T. FRAZIER, FIRST ASSISTANT COMMISSIONER OF PATENTS.

THE AGE takes pleasure in printing this month pictures of the Hon. Thomas Ewing, of New York, Commissioner of Patents, and the Hon. Robert T. Frazier, of Tennessee, the First Assistant Commissioner of Patents. Inventors, attorneys, the Patent Office and the general public will profit by the selection of these superior men to preside over the Patent Office. The President was indeed fortunate in finding men of such mental equipment and experience

to accept these offices. That they will render good account of their stewardship is a foregone conclusion. They have already entered upon the performance of their duties and give every promise of enforcing the Jeffersonian doctrine, 'equal rights to all, and special privileges to none.' In our August issue we gave biographical sketches of Messrs. Ewing and Frazier. We wish them success in their work.



### Radium Deposits in the United States.

Until recently it has been thought that Austria Hungary contained the largest deposits of this invaluable mineral, but within the last few months the discovery has been made that an area of about a thousand acres in Colorado contains ore from which it is expected that the yield of radium will be more than from any other locality in the world. The monthly output of ore from these mines is about 100 tons. This quantity of ore yields an average of  $15\frac{1}{2}$  grains showing 50 per cent of radium-barium-bromide, the standard material used for therapeutic purposes. This amount does not seem imposingly large, but it will be seen to be relatively so when it is considered that up to the present time not more than a whole ounce of pure radium has been obtained from all sources, and that fifteen grains of this metal is worth \$120,000. The ore is first treated in reduction mills and then taken to laboratories in Pittsburg to be refined. Processes and instruments used in this work are so delicate that one part of radium in ten billion parts of other matter is detected, and the operator can follow the rate of purification by the color of the radium salt. In the last stages of refining, the porcelain dishes used for holding the salts become illuminated with purple light from the rays thrown off by the radium. The purity of the radium is finally determined in a physical laboratory, where the strength of the rays thrown by the radium is measured.

### Industrial Bridges.

The need for economizing space in cities, and the desirability of assembling industrial plants close to the medium of transport, has led to many ingenious plans. One of the most novel is a bridge suggested by the citizens of Akron, Ohio. The city has a valley running through it, separating the business center from the residence district. It is planned to construct a reinforced concrete, high-level viaduct, to run from one side of the valley to the other, and let the supports of the bridge consist of buildings to be used in the industries. In other words, a line of buildings will be run across the valley, and the roof will serve as the bridge. The length of the bridge would be approximately 2,600 feet, and its width 60 feet. There would be a sidewalk eight feet wide on one side of the bridge, and on the other side would be a series of freight elevators, connecting the high roadway with the cross streets that run on the ground level and that would pass under the bridge, beneath arches. On the top story of the line of buildings, just under the main roadway, would be located a railway line, enabling the occupants of the factories below to load and unload goods under their own roof. The total cost of the project is estimated at less than a million dollars, and as it would provide 873,000 square feet of floor space available for rental, it is believed that it would offer special attractions for the location of industries.

### AN ELECTRIC AEROPLANE TACHOMETER.

THE accompanying illustration shows a novel aeroplane tachometer with no flexible shaft. This electric tachometer was especially designed for indicating continuously the speed of aeroplane motors and has a weight completed of only 3 pounds 12 ounces.

This electric tachometer consists of a small direct-connected magneto generator and an indicating electrical voltmeter instrument of the highest grade obtainable. The two parts of the system are connected by a duplex (two wire) insulated cable.

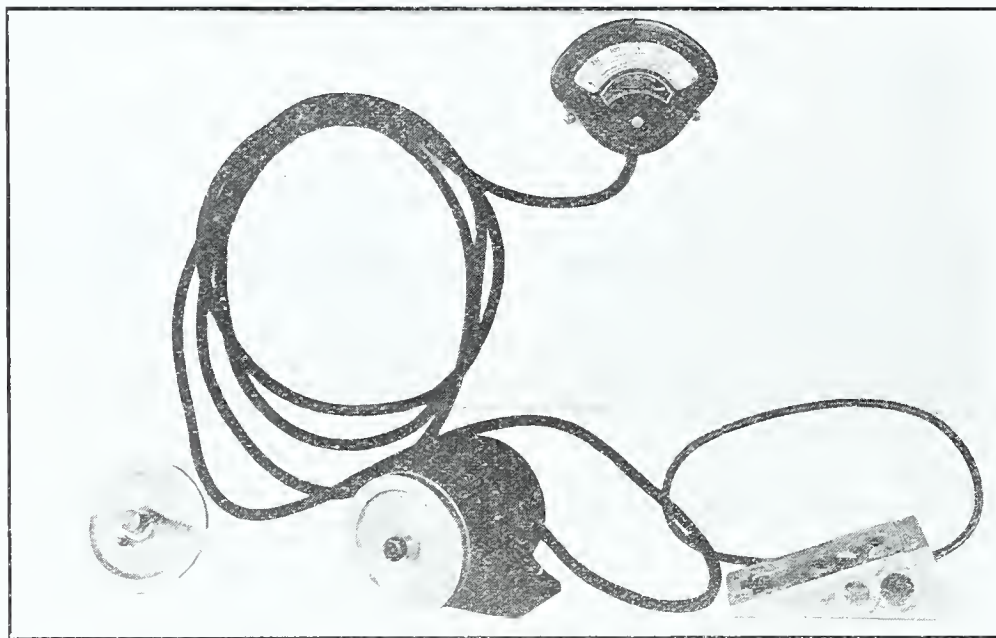
It is a well-known fact that when a system of coils is rotated within a permanent magnetic field, an electric voltage or potential is generated in direct proportion to the speed of rotation of the moving coils. It is therefore possible to calibrate the electrical voltage in terms of speed, in this instance, revolutions per minute.

rate and evenly divided scale can be, and is, used on this electric tachometer.

It is pointed out that this general type of instrument has been widely used for many years for purposes of electrical measurements of precision, during which time the lasting quality of its life has been fully shown. The particular instrument of this enduring type furnished in the Hopkins system is of the highest grade of manufacture obtainable. There is no perceptible wear in its use and it can be rendered inoperative only by misuse or violence.

There are but two bearings in this instrument, and these are made of the very best quality of sapphire. The pivots of the coil are of best hardened steel, and are ground and shaped under a microscope to the greatest degree of perfection.

It is held that there is nothing about



It will be seen that the indicating instrument is in the form of a special waterproof light sheet steel case, arranged for mounting at any point convenient to the aviator. This instrument weighs only thirteen ounces. The magneto is arranged with a base for mounting in close proximity to the shaft, and can be attached readily to any type of aeroplane motor. The magneto weighs two pounds and three ounces.

It may be stated that the permanent field type of electrical instrument consists of a permanent horseshoe magnet between whose pole swings, in an arch of ninety degrees, an extremely light moving system. This moving coil, which is mounted upon an aluminum frame, is supported by two unusually large and ruggedly constructed sapphire bearings.

On account of the principle of the D'Arsonval electrical instrument, the moving system is responsive to the most minute electrical pressures, from zero to the maximum angle of deflection. It also gives an angular deflection directly in proportion to the electrical pressure applied. In other words, if the electrical pressure (voltage) is doubled, the angular deflection of the moving system is also doubled. This means that an absolutely accu-

this instrument to get out of order as there is no mechanical wear on it. There are no joints or parts to wear and cause lost motion, and the accuracy of the system is unaffected by changes in temperature. By using the permanent magnet type of instrument the tachometer gives absolutely steady readings at all speeds.

In this electric aeroplane tachometer the system is composed of a permanent tungsten steel magnet, carrying pole pieces between which the moving element turns, mounted in sapphire bearings above and below. This moving element consists of a aluminum frame, pivoted, and carrying a light electrical winding, and an aluminum pointer or indicating hand. A scale plate, as shown in the illustration, has uniform graduations throughout its entire length. A small spool carries a very fine resistance wire of zero temperature coefficient, which is the means of securing refinement and permanence of calibration. The connections are made at the back of the instrument to terminal posts, and are insulated and sealed. The twin conductor cable passes out of the instrument at its lower edge, thereby making installation in any position convenient. The wires which lead from the magneto generator are enclosed in

a waterproof rubber covering, which is reinforced with a cotton braid, making a light but effective and reliable cable.

The magneto is of the direct current type and consists of a six hole armature, rotating between the poles of a permanent horseshoe magnet. The current generated in the armature is sent to the line through a commutator of six parts; the rotating bars being of 14 karat gold and the brushes or contractors of 20 karat gold.

Any chatter set up in the main driving shaft is not communicated to the armature and commutator shaft, and a steady reading of the tachometer is permitted. By using internal reduction gears, remarkable high speeds can be measured with precision without exceeding the practical limits of commutation. In addition the internal reduction gears minimize the commutator and brush wear.

In this magneto there is a tungsten steel magnet, between the poles of which rotates the small armature, the commutator of which is composed of six gold bars. The brush gear consists of four small gold brushes, acting upon the barrel of the commutator and held in position by the long flexible bronze springs. It may be mentioned that the driving of the armature is accomplished by internal gears, the pinion gear on the main shaft and the armature gear. The wires are led out through the case. The entire generating mechanism is enclosed in the water-tight cast-aluminum case, having a base for ready installation. The bearings of the magneto are of special bearing phosphor bronze, and are screwed and riveted into the cast aluminum case.

It is maintained that this aeroplane tachometer is not only an extremely light, easily read instrument, but is a speed indicator of great value for the use of the aviator who desires to know exactly at what efficiency and safety his engine is operating at all times during flight. It is also very important for him to know accurately whether or not his engine is operating at a proper speed, even before his plane leaves the ground. The tachometer is therefore a most practical indicator of the safety of operation of the aeroplane. It runs noiselessly, and there are no sounds connected with the operation of this equipment to annoy the aviator. It also works without the use of troublesome flexible shafting, and for this reason the indicating instrument can be placed at the most desirable point for the aviator's use. It is said that if it is so desired, and since the indicator is so light, it may be readily strapped to the aviator's wrist. It reads accurately and steadily, no matter in what position it is being supported.

This aeroplane tachometer is said to be one of the most accurate and reliable speed indicators known, and is not affected by changes in temperature and altitude. It is thoroughly waterproof in construction throughout, and cannot be affected by the most extreme weather conditions.

THE INVENTIVE AGE contains sound advice to inventors and patentees. For lack of such advice many have lost money. Subscription price, one dollar a year.



### Electric Voting.

Filibustering in the House of Representatives by the long and tedious roll call is doomed, if the proposed electric system of balloting is adopted. Representative Garrett of Tennessee, a member of the rules committee, is responsible for this suggestion, which would be the first example of electropolitics in history.

Under the present rules, one of the easiest methods of delay is making a point of no quorum or calling for a record of the yea-and-nay votes. That means that the entire list of members of the House must be called out carefully by the clerk, and after the first call is over the list is read aloud, the operation taking forty-five minutes at the first session, and will take more time at the coming session because of the increased number of representatives.

The new scheme would mean that voting would take five minutes or less. There would be no calling of the roll a second time. It is believed that with the new plan members would stay around the House more than they do at present. Now a loud gong rings three times in the corridors of the Capitol and the office building, and members walk leisurely over to record their names as "present," and then walk back to their offices again, at times wholly ignorant of what is going on in the House.

To make electric voting practical there would have to be beneath every chair in the House a box, containing three buttons, recording "present," "aye" and "no." Each member would have a key to his own particular voting box and no other key would fit it. When the time to vote came the Speaker would say, perhaps:

"All those in favor of this amendment will punch."

The ayes will then press buttons all over the House, and at the clerk's desk all the votes will be recorded mechanically on a card. The noes will do the same thing. There will be no waiting until the second roll call to see how certain men are going to vote. If there should be no quorum, the rules could be changed so that the record will show the names of the men present at the time no quorum is announced. At present, when a point of no quorum is raised, the Speaker counts noses, satisfies himself that there is no quorum, and the clerk begins to call. Meantime members flock in to the chamber on the double roll-call system and the Congressional Record shows the names of those who answer. The Record never publishes the names of the few men who are present at times just before the roll call starts.

To keep themselves posted in the progress of the arts in which they are interested, inventors and manufacturers should subscribe for the INVENTIVE AGE, which publishes a list of all patents issued each month. The low subscription price and the character of the publication entitle it to the support of all the inventors of the country.

### AN ELECTRICALLY OPERATED SMOKE RECORDER.

THE accompanying illustration shows a novel and interesting electric motor-driven smoke recorder, as recently developed at Chicago, Ill. War was declared against the smoke nuisance in the reign of Queen Elizabeth, and has been going on ever since. The solution of the smoke problem does not lie with the smokeless furnace, for if it did, smoke would have been banished long ago. Every imaginable thing has been patented in the way of a furnace, and still there is smoke.

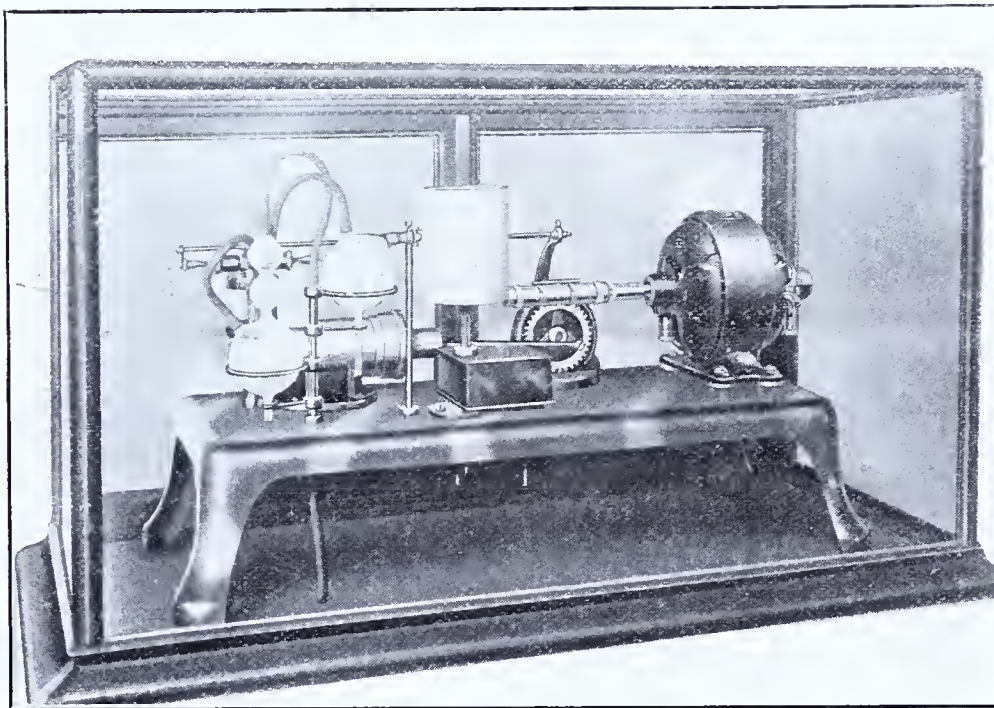
Nearly three patents a week is the record for smokeless furnaces in the last twenty years. Many of these are meritorious. There is no "cure all" for soft coal smoke and there never will be, and the sooner engineers recognize this fact and attack the trouble at its root, the sooner the smoking chimneys will disappear.

It is well known that carelessness and ignorance are the two great causes of the smoke nuisance. It is possible to

under inspection.

Recording apparatus of every kind is coming more and more into use, particularly in power plants. It is maintained that the most effective remedy for the smoke nuisance that has ever been produced is the smoke recorder. It is a check, both upon the chimney and the fireman. Smoke can always be greatly reduced and sometimes completely eliminated by careful management of the fires. No matter what kind of smokeless furnace one may have, it cannot live up to its title and make steam unless it is managed with care and intelligence.

This new electric driven smoke recorder originated in the brain of Ray L. Eddy, who has devoted many years to the study of smoke, its causes, effects and remedies. This recorder is the watchman that informs the fireman immediately if the stack begins smoking. He can at once adjust the dampers or apply any other remedy



eliminate ignorance, for one can instruct the fireman, and when a man knows how a thing should be done he is no longer ignorant; but to eliminate carelessness one must change human nature. "Man is as prone to carelessness as the smoke is to follow the sparks," is not scripture, but is as true. It is necessary to check and punish carelessness, but one cannot punish without evidence. One must know when, how long and how much the chimney smoked, and who was in charge when the plant was guilty of the nuisance.

When the smoke is sifted down to the last analysis, it is found that carelessness is responsible for ninety per cent of it. This is the testimony of smoke inspectors, combustion engineers and others who have made an exhaustive study of the subject. As carelessness is the most potential cause of smoke, it must follow that the most effective cure for carelessness is the best remedy for smoke. The problem therefore is to find the means of making the negligent fireman careful. It is in the nature of every man to be more attentive to business when he is

that is recommended by his observation and experience. He can stop smoke within the time limit named by the city ordinances, and in all probability before a smoke inspector or some complaining citizen can get his eyes upon the chimney.

In order to fight smoke it is necessary to know what causes it. Smoke is usually caused by lack of air, improper mixture of the air with the gases, or wrong temperature. Improper furnace design often has much to do with it.

If one watches the smoke recorder and notes the furnace conditions when the apparatus reports smoke, it will soon be discovered how to operate the furnace without smoke or at least with a negligible quantity.

Entering into the theory of the principles involved in a smoke recorder, it may be stated that if one drives a jet of smoke against porous paper, the soot and other coloring matter will adhere to the paper and form a permanent record. It will be permanent because the soot particles will be driven into the pores of the paper. The record upon the paper will cor-

respond with the color of the smoke, irrespective of what the color may be.

There are two things necessary in the construction of a smoke recording apparatus: To provide means to draw a sample of the gas from the chimney and force it through a small orifice, and also to provide a sheet of the proper paper and a clock or other mechanism to move it. Reduced to its primary elements, a smoke recorder consists of a pump and a clock and a piece of paper. These things are simple in themselves, but one cannot bring any pump, any clock and any piece of paper together and get a smoke recorder. The clock must be correlated to the pump. In other words the chart must be moved by the clock at a rate of speed which properly corresponds to the speed of the pump, otherwise smoke deposits upon the chart will be too light or too dark to represent the exact color of the chimney smoke. For example, if light smoke is blown for too long a period upon one spot on the chart, the color deposit will be black.

It is true that there is more or less moisture in chimney gases, the amount depending upon the condition of the coal and the humidity of the atmosphere. Experiments have proved that this moisture must be removed if a perfect record is to be secured. A simple means has finally been discovered for drying the gas without removing the coloring matter.

The pump, electric motor, chart and other parts of the apparatus can easily be identified in the accompanying photograph. Aluminum, phosphor-bronze and the best tempered tool steel are employed in the construction of the instrument. The electric motor is only one-fifth horsepower, and the apparatus measures 12 inches high, 12 inches wide, 25 inches long and weighs 50 pounds. It will be seen that it is housed in a glass case and may be set up in any boiler room in defiance of dust and drafts. It is self-oiling, and there will be no occasion to touch it except when changing the chart.

It may be stated that the chart is sectionally ruled in hours and minutes, each chart covering a period in excess of twelve hours, and one can tell almost to the second when the chimney began to smoke, how long the smoke lasted and what its destiny was.

The records are ineffaceable and if the pipe connections are run without valves, the fireman cannot tamper with the instrument.

### Bicycles in Africa.

The ship of the desert is being supplanted by the bicycle. It has always been supposed that the camel was the only means of transportation in northern Africa, but that bicycles serve a most useful purpose is shown by the fact that 6,000 of these machines were sent to Africa for the use of the Italian troops in the recent campaign. Most of the bicycles were specially constructed and had very high frames, the driving gear about a foot above the usual position, so that the pedals will not strike upon rocks and stones when the machines are being propelled across the desert.



# CLEVER NEW PATENTS.

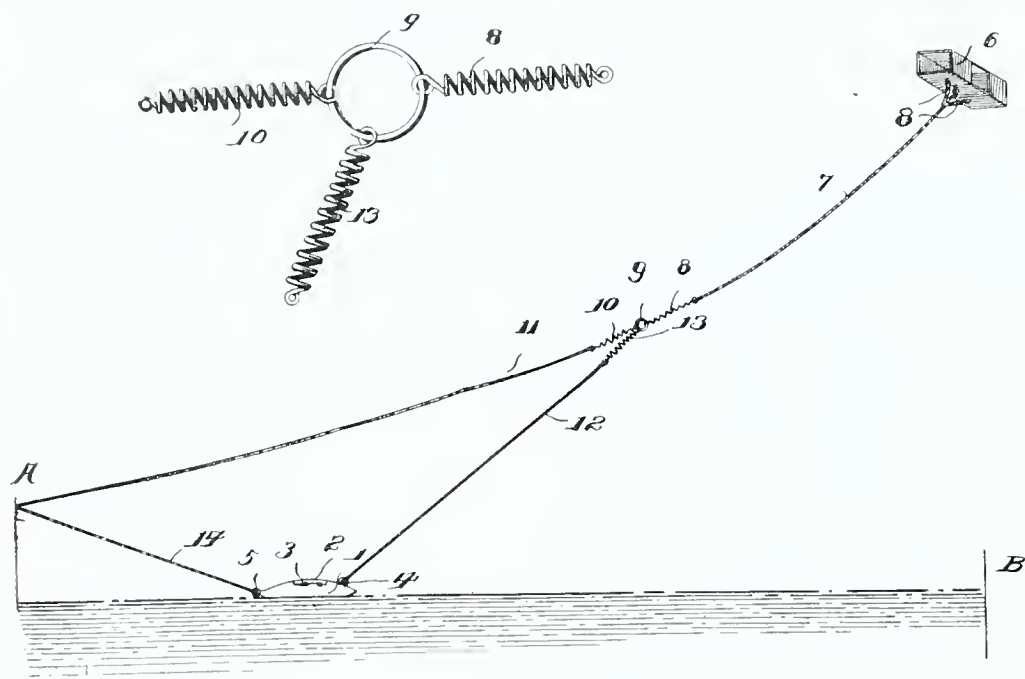
LIFE SAVING APPARATUS—IRRIGATING APPARATUS—HAT PIN GUARD.

## Life Saving Apparatus.

An invention, which is designed to provide an important advance in the line of marine life saving devices, has been made by Harry F. Smith, of Richmond, Va., and the patent issued thereon has been assigned to himself and George J. Hooper of the same place.

The object of the invention is to provide a device by the use of which a line may be sent from a wrecked vessel to the shore, so that the paraphernalia of the breeches buoy or like device may be placed in position to transfer persons from the vessel to the shore, and may also be used to transfer light baggage or mail from the vessel through the surf to the shore or from the shore to the vessel as desired. One aim of the invention is to provide an aerial traction device and a float arranged to be drawn thereby, with means whereby the movement of the traction device may be controlled from the ship equipped with the apparatus and the float safely conveyed over rocks and shoals.

In the accompanying illustration *A* indicates the location of the vessel which is equipped with the apparatus, and *B* the shore to which the float of the apparatus is to be drawn. The float is indicated by the numeral 1, and is preferably in the form of a hollow body made of wood or other suitable material, and is provided in its upper side with a hinged door 2 whereby access may be gained to the interior thereof. A ring 4 is located at the forward end of the body upon the upper side, and a ring 5 is located at the rear end thereof.



The float is adapted to be drawn over the surface of the water from the vessel to the shore by means of an aerial traction device. As shown in the cut, this is in the form of a box kite 6. A line 7 is connected by means of branch ropes with the kite 6 and at its opposite end to one end of a spring 8, which is connected to a ring 9. A spring 10 is also connected with the spring 9, and to its other end has connected one end of a rope 11, which is stored upon the vessel and may be paid out from a suitable reel upon which it is wound. By means of the cable 11, the movement of the kite 6 may be controlled on the vessel so that the kite may be retarded in its movement, if desired. A rope 12 is connected at one end to the ring 4 upon the body, and at its other end to one end of a spring 13, which in turn is connected with the ring 9. In this manner the float is connected with the kite, whereby as the kite travels from the vessel, it will draw the float across the surface of the water.

The purpose of the springs 8, 10 and 13 is to relieve the cables of certain tension should the float be retarded in its movement, and consequently avoid breakage of the cables.

It will be understood that the float may be used to contain baggage or mail. By this device an apparatus is provided which may be used to conveniently and successfully transport persons from a wrecked vessel to the shore, or to an adjacent vessel, and also to transport mail of all kinds where it is impracticable to convey the same in a small boat.

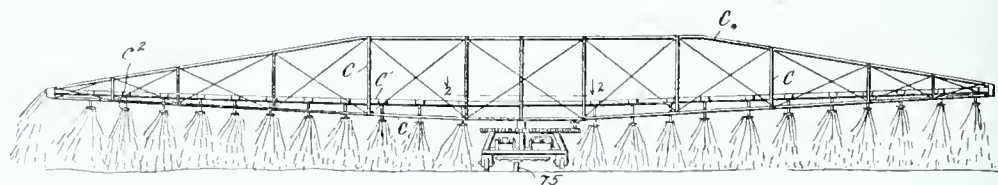
## Irrigating Apparatus.

A novel form of sprinkling apparatus is shown in the accompanying illustration. The apparatus is capable of automatic operation and will cover a wide area, sprinkling the ground in a thorough manner resembling natural rain. The apparatus is provided with a truck having wheels adapted to run on a track which is laid on the ground to be sprinkled. The truck frame is of suitable form and construction to support the various parts of the mechanism, and is composed of iron beams, bars and plates secured together in an appropriate manner. The top of the truck frame is circular in form and has gear teeth provided on its outer edge. The truck frame is also constructed with a turn table or track for the frame *C* to turn upon.

The frame *C* is preferably composed of pipes and rods suitably connected to form the support for the sprinkling pipe *C*<sup>1</sup> which extends across the machine. It is provided with wheels supported by brackets on the underside of the frame,

said wheels resting and adapted to travel upon the top of the truck frame. The sprinkling pipe *C*<sup>1</sup> carried by the frame *C* is provided with numerous sprinkling heads *c*<sup>2</sup> as shown. By reason of the particular arrangement of the sprinkling heads, they are adapted to discharge the water downwardly so that it will fall upon the ground by its own weight only.

Mounted upon the frame, but not shown in the illustration, is a water motor, by means of which the pressure of the water flowing through the motor is caused to rotate the frame *C* and carrying the sprinkling pipe around the car or truck. By suitable mechanism, not shown, the entire apparatus is caused to travel along the track until it reaches the end thereof, whereupon the apparatus reverses itself and returns to its original position, in the meantime the sprinkling frame being kept in constant rotation upon the truck and serving to deliver the water in an even, steady flow, completely irrigating the ground within the prescribed area.



The track is portable and may be taken up and placed in another section of the field, or permanent tracks may be laid at proper intervals apart in order that the complete field may be properly watered. The car travels back and forth along the track without attention as long as may be necessary to furnish the moisture needed for irrigating the soil. If desired to irrigate a particular section only, the car may be allowed to stand stationary on the track and the frame *C* revolve, or the car may travel back and forth along the track with the frame *C* with its sprinkling pipe *C*<sup>1</sup> stationary.

The invention has been patented by Edward A. Mathers, of Greensburg, Pa., and his patent is of broad scope.

## Hat Pin Guard.

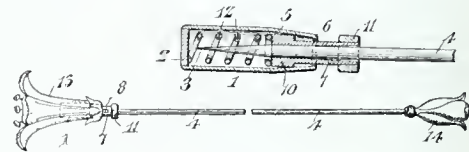
The demand for a guard for hat pins has been largely due to accidents where injury has been done through a protruding hat pin, or where pins have been lost. Many attempts have been made to provide a simple device to serve as a guard for a hat pin, but most of the devices which have been patented are too complex to be commercially successful.

John H. Anderton, of Fresno, Cal., has originated a device which can be used on hat and other pins, and is capable of housing the point of the pin and effectually preventing the withdrawal of the same by a direct pull on the pin.

Referring to the illustration, the lower figure shows the device complete; while the upper figure is a sectional view of the guard for the pin point 4. The guard consists of a shell 1 of substantially cylindrical form open at one end and closed at the other. The shell or casing is provided at its closed end with an end wall 2, consisting of a disk of soft rubber adapted to form a stop for the pin point without dulling the same. Mounted within the shell is a tubular sliding clamping sleeve 7, constructed of resilient material, and provided with longitudinal slots extending from the inner end of the sleeve to within a short distance of the outer end thereof, thus dividing the sleeve into a

plurality of clamping jaws which are adapted to grip the pin. The sleeve is provided at its inner end with an enlargement 10, which forms terminal bosses for the jaws, said bosses being adapted to engage with the interior of the tapered portion 5 of the casing, whereby the jaws are forced inwardly into engagement with the hat pin.

When the hat pin is not in the guard, the spring 12 bearing against the boss 10 will force the clamping sleeve outwardly until the jaws contact with one another. The interior of the inner ends of the clamping sleeve will then be of less diameter than that of the hat pin. When the hat pin is inserted a certain distance, it will fit tightly against the interior of the clamping sleeve at the inner portion thereof, and when further pressure is exerted on the pin and the guard, the clamping sleeve will open sufficiently to permit



the pin to pass through it to the soft copper end wall 2. Upon releasing the pin and the guard, the coiled spring, which has been more or less compressed by this operation, will force the clamping sleeve outwardly against the tapered portion of the shell or casing, and thereby cause the sleeve to grip the pin firmly with a force depending on the strength of the spring.

As shown in the drawing, the pin guard may be ornamented in any desired manner, and may be used on scarf pins or any other form of pin, and is not limited to hat pins.

# PATENTS,

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## LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

### STANDARD ASPHALT & RUBBER CO. v. AMERICAN ASPHALTUM & RUBBER CO. et al.

(District Court, N. D. Illinois. Feb. 24, 1913. 203 F. R. p. 508.)

#### 1. PATENTS—VALIDITY AND INFRINGEMENT—ASPHALTIC FLUXES.

The Culmer & Culmer patents, 635,429, for a process of making asphaltic fluxes by dehydrating petroleum residuum and simultaneously passing an air blast through the charge, and No. 635,430, for the product of such process, were not anticipated by the Byerley patent, No. 524,130, and must be conceded patentable novelty and invention, in view of the presumption arising from the grant, the large use of the product in pavement construction, and the difference between the two products, especially when considered in connection with the paving art; also held infringed.

#### 2. PATENTS—ANTICIPATION—CHEMICAL PROCESSES—IDENTITY OF PRODUCTS.

In comparing chemical processes, the lack of identity in the products is evidence of lack of identity in the processes.

### RITER-CONLEY MFG. CO. v. AIKEN et al.

(Circuit Court of Appeals, Third Circuit. Jan 28, 1913. 203 F. R. p. 699.)

#### 1. PATENTS—VALIDITY AND INFRINGEMENT—ROOF STRUCTURE.

The Aiken patent, No. 718,044, for a roof structure designed for use on large manufacturing buildings or sheds, by which light and ventilation are secured without building eabins or other structures above the roof, by dropping every alternate transverse section of the roof to the lower chord of the trusses and placing windows in the vertical sides of the higher sections, discloses a device which was novel, useful, and inventive in character; also held infringed.

#### 2. PATENTS—SUBJECTS OF PATENTS—MANUFACTURES—BUILDING STRUCTURES—"USEFUL ART"—"MANUFACTURE."

Building is a "useful art," within the meaning of article 1, § 8. of the Constitution, authorizing Congress to provide for the granting of patents to "promote the progress of \* \* \* useful arts"; and a building, or a structure which forms part of a building, if it involves novelty and invention, is patentable as a "manufacture," under Rev. St. § 4886 (U. S. Comp. St. 1901, p. 3382.)

#### 3. PATENTS—CONSTRUCTION OF STATUTE—CONSTRUCTION BY PATENT OFFICE.

The uniform practice of the Patent Office in granting patents for building structures, and their recognition by the courts, are entitled to weight on the question whether such structures are "manufactures" within the meaning of the statute.

#### 4. PATENTS—CONSTRUCTION OF STATUTE—"MANUFACTURE."

The term "manufacture," as used in the patent law, has a very comprehensive sense, embracing whatever is made by the art or industry of man, not being a machine, a composition of matter or a design.

### ELBS v. ROCHESTER EGG-CARRIER COMPANY.

(Circuit Court of Appeals, Second Circuit. Feb. 10, 1913. 203 F. R. p. 705.)

#### PATENTS—VALIDITY AND INFRINGEMENT—EGG-CARRIER.

The Jenne patent, No. 722,512, for an egg-carrier, while not for a generic invention, covers a simple and ingenious device, which is a distinctive improvement on those of the prior art, and the patent is entitled to a sufficiently liberal construction to protect the same. As so construed, held infringed.

### YALE & TOWNE MFG. CO. v. FORD.

(Circuit Court of Appeals, Third Circuit. Feb. 15, 1913. 203 F. R. p. 707.)

#### TRADE-MARKS AND TRADE-NAMES—NAME OF PATENTED ARTICLE—EFFECT OF EXPIRATION OF PATENT.

Where the maker of a patented article marked it as patented, and also designated it by an arbitrary name by which it became known to the public, on the expiration of the

patent other manufacturers, having the right to make the article, had also the right to use the name, provided they took proper care to prevent their product from being confused with that of the original maker.

### LAWRENCE et al. v. P. E. SHARPLESS COMPANY.

(District Court, E. D. Pennsylvania. March 17, 1913. 203 F. R. p. 762.)

#### 1. TRADE-MARKS AND TRADE-NAMES—PRIOR USE WITH REFERENCE TO DIFFERENT ARTICLE.

The use of the figure of a cow on defendant's butter prints, prior to complainant's use of the same figure as a trade-mark on cheese, would not invalidate complainant's trade-mark, if the figure was otherwise a valid trade-mark.

#### 2. TRADE-MARKS AND TRADE-NAMES—VALIDITY OF MARK—GENERIC AND DESCRIPTIVE MARKS.

The figure or symbol of a cow is generic and descriptive, and cannot, therefore, be appropriated as a valid trade-mark to be applied to butter, cheese, and dairy products.

#### 3. TRADE-MARKS AND TRADE-NAMES—UNLAWFUL COMPETITION.

Where defendant appropriated complainant's marks on cheese packages in order to palm off defendant's goods as those of complainant, complainant was entitled to injunctive relief on the ground of unfair competition, though he was unable to establish a technically valid trade-mark.

#### 4. TRADE-MARKS AND TRADE-NAMES—INFRINGEMENT—UNLAWFUL COMPETITION.

Complainants habitually since 1895 manufactured and successfully sold Neufchatel cheese labeled with the figure of a cow, printed in blue ink in a rectangular square on the tin-foil covering. Defendant, prior to 1907, deliberately put out a similar cheese with a label identical in form, color, and design, printed in blue on tin-foil, and after 1907 knowingly continued the use of the label to enable him to supply his customers with such cheese, by which the public might easily be defrauded to believe the cheese to be complainants'. It also appeared that the similarity had deceived purchasers, and that complainants' trade, in consequence, had fallen off. Held, that complainants were entitled to an injunction restraining defendant from further using such label, on the ground of unlawful competition.

### AUBRY SISTERS v. CREME DE MOHR CO., Inc, et al.

(Circuit Court of Appeals, Second Circuit. Feb. 10, 1913. 203 F. R. p. 861.)

#### TRADE-MARKS AND TRADE-NAMES—INFRINGEMENT—LABELS.

A trade-mark for a face cream, designed to be printed on a label and placed on the jar containing the preparation, held not infringed by the label of another manufacturer, on which different colors and lettering were used, and which resembled that of complainants only in that both contained a picture of a woman's head surrounded by a circle.

### CARBORUNDUM CO. v. ELECTRIC SMELTING & ALUMINUM CO. ELECTRIC SMELTING & ALUMINUM CO. v. CARBORUNDUM CO.

(Circuit Court of Appeals, Third Circuit. March 15, 1913. 203 F. R. p. 976.)

#### 1. PATENTS—INFRINGEMENT—ELECTRIC SMELTING PROCESS.

The Cowles patent, No. 319,795, for a process of smelting ores or metalliferous compounds by an electric current, giving it the liberal construction to which it is entitled, held infringed.

#### 2. PATENTS—INFRINGEMENT—PROFITS RECOVERABLE.

On an accounting for profits, and not for damages, for infringement of a process patent, where profits to the infringer are impossible, save through his infringement, he must be treated as a trustee ex maleficio, and can withhold none of his gains from the patentee.

#### 3. PATENTS—INFRINGEMENT—RECOVERY OF PROFITS.

On an accounting for profits, the fact that

the owner of the patent has not used the thing patented is immaterial.

#### 4. PATENTS—INFRINGEMENT—LIABILITY FOR PROFITS—PROCESS PATENTS.

Where a valid process patent has been granted and applied by the patentee to the production of an article, though not on a commercial scale, but there has been no abandonment by him of the right to apply the process to the production of the article on such scale, and the article can be produced only by the use of that process, an infringer who so uses it is not relieved from liability in whole or in part by obtaining a later patent on the product.

#### 5. PATENTS—INFRINGEMENT—ACCOUNTING FOR PROFITS.

Taxes and insurance premiums paid by an infringer are not usually allowable to him on an accounting for profits, but are so allowable where they were paid on a plant devoted solely to the infringing business, the entire profits of which have been awarded to the patent owner.

### CHADELOID CHEMICAL CO. v.

#### JOHNSON et al.

(Circuit Court of Appeals, Seventh Circuit. Jan. 7, 1913. 203 F. R. p. 993.)

#### 1. PATENTS—SUIT FOR INFRINGEMENT—EQUITY JURISDICTION.

A suit in equity will not lie for a past infringement of a patent, which has ceased, and where defendant does not threaten nor intend to again infringe, which fact is known to the complainant.

#### 2. PATENTS—SUIT FOR INFRINGEMENT—GROUNDS—BREACH OF CONTRACT BY LICENSEE.

A suit in equity for an infringement of a patent cannot be maintained by a licensor against a licensee because of the breach by the latter of conditions of the contract requiring him to make stated reports, pay royalties, or submit his books to inspection, which are purely matters of contract, and not of patent law.

### DE LASKI & THROPP CIRCULAR WOVEN TIRE CO. et al. v. FISK RUBBER CO.

(Circuit Court of Appeals, First Circuit. March 11, 1913. 203 F. R. p. 186.)

#### 1. PATENTS—ANTICIPATION—APPARATUS FOR MANUFACTURING PNEUMATIC TIRES

The Thropp patent, No. 822,561, for apparatus for manufacturing tires for automobiles, is void for anticipation by an apparatus in use in Akron, Ohio, prior to the alleged invention by the patentee.

#### 2. PATENTS—ANTICIPATION—EVIDENCE.

The rule referred to that, to sustain the defense of anticipation in a patent case, by a prior use of another, where there has been a considerable lapse of time, the testimony must be clear, unequivocal and convincing.

### HURD et al. v. JAMES GOOLD CO.

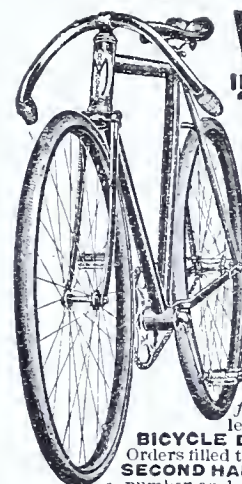
(Circuit Court of Appeals, Second Circuit. Feb. 10, 1913. 203 F. R. p. 998.)

#### 1. PATENTS—SUIT FOR INFRINGEMENT—PRELIMINARY INJUNCTION.

A preliminary injunction should not be granted to restrain infringement of a patent, although infringement is shown, where the right to maintain the suit depends on the decision of the Supreme Court in another suit pending before it, which was brought by the same complainant and decided adversely to him.

#### 2. PATENTS—SUIT FOR INFRINGEMENT—RIGHT TO MAINTAIN.

The fact that in one circuit a patent has been adjudged invalid, and the owner enjoined from bringing suit for its infringement, does not deprive a prior licensee thereunder, who has an exclusive license to vend in a limited territory in another circuit, where the patent has been sustained, from there maintaining a suit in equity to protect such rights as he may have; and in such suit he may of right join the owner of the legal title to the patent as a complainant, even without the latter's consent.



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## MECHANICAL INVENTIONS

Patents for which have been procured through the Patent Soliciting Office of E. G. Siggers, Patent Lawyer, Washington, D. C.

Anton Stepanek, New Castle, Ind. **Dirigible Headlight for Automobiles.**—The object of the present invention is to provide means for mounting the headlights on an automobile or other motor vehicle by connecting them with the steering mechanism, whereby when the front wheels are turned to change the direction of the machine, the headlights will be correspondingly turned so as to throw the light in the direction in which the machine is traveling, thus enabling the operator to see around corners of streets and bends or curves of roads, affording greater safety to both occupants of the vehicle and the public. The invention includes a lamp bracket having a stem or pivot mounted on the frame of a vehicle, a bearing bracket secured to the axle, a vertical shaft carried by the bearing bracket, connections between the shaft and the shiftable bar of the steering mechanism, and gearing for communicating motion from the shaft to the pivot or stem of the lamp bracket.

Jeremiah Miller, Turtle Creek, W. Va., inventor; Jacob D. Perry, A. D. Lawson and Charles R. Mitchell, Danville, W. Va., assignees. **Combined Fork and Rake.**—The invention embraced in this patent is a garden tool, which is adapted to be adjusted and used as a combined pitch fork, rake and brush cutting device, the tool being constructed in such a manner that when it is used as a fork the cutting blade will be folded within the handle out of the way, and when employed as a rake the cutting blade will project outwardly in line with the tines of the rake and provide a ready means for cutting small roots, brush and the like. It consists of a handle having a slotted ferrule, a fork having an integral arm extending from the head thereof and pivotally mounted in the slot of the ferrule and provided with a projecting lip, said arm being sharpened to constitute a cutting blade, the slot receiving the said arm when the fork is arranged in longitudinal alinement with the handle, a spring catch for locking the parts when the fork is arranged at an angle to the handle to constitute a rake, and a turn button mounted on the ferrule and adapted to engage the lip on the said arm when the fork is arranged in longitudinal alinement with the handle.

William A. Hagerman, London, Ontario, Canada, inventor; Wesley J. Hill, same place, assignee. **Holdback.**—This invention relates to an attachment to the shafts of a vehicle in the nature of a holdback, by means of which the wrapping of shafts is obviated, and an automatically detached holdback is provided. Moreover, the construction of the holdback enables the breeching to be held in a straight line above the shafts and not permitted to sag and chafe the flank of the draft animal. The device consists of an elongated guide plate adapted to be attached to the shaft of a vehicle and having its guide open at the front end and closed at the rear end, a slide block movable in said plate and removable from the open front end of the guide, and a spring within the guide plate for providing a frictional resistance to the movement of the said block. The draw strap of the harness is connected at its front end to the backband, while the inner ends of both the holdback strap and the draw strap are connected to the slide block, so

that the latter is carried by both straps, the length of the draw strap being less than the distance between the front end of the guide plate and the front end of the shaft, whereby upon unhitching the traces from the whiffletree and leading the horse from the shafts, the latter will not be permitted to drop to the ground until after the slide block has become entirely disengaged from the plate.

Samuel Harding, Syracuse, N. Y. **Clothes Stick.**—This invention relates to clothes sticks employed in lifting clothes from wash boilers. The object is to provide a simple and cheap construction, which will effectually engage the clothes and prevent the same from slipping off. It consists of a handle of suitable length having a head formed of a single piece of wire, which is secured at one end of the handle, said head including a plurality of transversely arranged fingers located at the extreme end of the handle, and oppositely arranged clothes supporting arms located at an intermediate point of the handle. The oppositely arranged fingers form a flat extended surface for pushing the clothes down into the water, while the arms provide an extended support for the clothes when removing them from the boiler.

Edward J. Spink, Council Bluffs, Iowa, inventor; Robert S. Humphrey and Joseph A. Miller, same place, assignees. **Hydrocarbon Burner.**—The object of the invention is to provide a construction of burner, which will accomplish an efficient preheating of the liquid fuel, causing the latter to be converted into gas of sufficiently high temperature to produce the most perfect combustion when ignited in the presence of a sufficient quantity of air to support such combustion. It consists of a cylindrical member having a freely exposed exterior, and an interior unobstructed annular chamber formed therein with a central passage extending entirely therethrough, a burner in axial relation to the central passage so as to be in proper position to direct the flame therethrough, and a deflector carried by the exit of the cylindrical member and of greater diameter than and confined to the exit end of the cylindrical member for directing the flame extending through the central passage through the cylindrical member into enveloping relation to the exterior of said gasifying member.

Edward J. Spink and Joseph A. Miller, Council Bluffs, Iowa, inventors; Robert S. Humphrey, same place, assignee. **Pasteurizing Machine.**—This invention relates to machines for pasteurizing liquids, and it is particularly designed for treating milk. The object of this invention is to provide an apparatus in which the scalding of the liquid will be avoided, and the flow of the liquid will be automatically regulated so that the entire body will be treated without interruption, the construction being simple, compact and efficient in operation. It consists of a support, a pasteurizing disk therein, a liquid compartment below the said disk, a liquid supply pipe rising centrally from the said disk and communicating with the said compartment, a closure for the upper end of said pipe, a cap secured on the upper end of the said pipe, a hopper resting on said cap, a distributing tank fitting around and supported by the supply pipe and adapted to distribute fluid onto the pasteurizing disk, and means for conveying fluid from the hopper into said tank.

Edward J. Spink, Council Bluffs, Iowa, inventor; Robert S. Humphrey and Joseph A. Miller, same place,

assignees. **Pipe Wrench.**—It is the aim of the present invention to provide a pipe wrench, capable of easy and rapid adjustment, and adapted to release itself automatically from a pipe when the strain on the parts of the pipe are removed. The wrench includes a fixed jaw having a hollow shank provided at the back with interiorly arranged teeth, a movable jaw co-operating with the fixed jaw and having a shank movable longitudinally within the hollow shank of the fixed jaw and provided at its rear edge with teeth to interlock with the teeth of the hollow shank, a spring secured to the movable shank and bearing against the fixed shank to disengage the shanks automatically from each other when the wrench is relieved of strain, and a device for locking the teeth of the movable shank in engagement with the teeth of the fixed shank.

Willard W. Allen, Streator, Ill. **Grain Door for Freight Cars.**—The object of this invention is to provide a freight car door adapted when closed to form a grain-tight door, and capable of being readily handled in opening and closing it. Another object of the invention is to provide a sectional grain door, adapted when not in use to be securely retained in an overhead position at the top of a car, and should any of its sections become worn or broken, enabling the same to be readily removed and replaced by new sections. The invention comprises in its construction a freight car having opposite openings, channel guides consisting of vertical portions arranged at and along the sides of the door openings and transverse portions extending across the car at the top and connecting the vertical portions, exteriorly operable dogs located within the transverse portions of the guides, and grain doors composed of sections slidable in the channel guides and arranged to be held in the transverse top portions thereof by said dogs. The grain doors are adapted to be securely locked in their closed position, and are adapted to be varied in size to suit the commodity to be loaded in the car.

William A. Brewster, Redlands, Cal. **Heating Drum.**—This invention has for its object to provide a heating drum designed to be applied to the outside of a stove pipe to be heated by smoke and other products of combustion, being equipped with means for permitting the smoke to either pass directly through the stove pipe or spirally around the heating drum. The heating drum, which affords ready access to its interior to enable it to be cleaned when necessary, comprises an inner pipe having inlet and outlet openings at spaced points, annular heads permanently secured to the pipe beyond the said openings, a spiral partition surrounding the pipe and arranged between the said openings, a removable cylindrical casing surrounding the spiral partition and connected with the heads, and a damper operating within the pipe between the said openings.

Albert E. Blake, Rochester, N. H., inventor; Frank H. Blake, Rochester, N. H. and James L. Blaisdell, Newport, R. I., assignees. **Sash Lock.**—The object of this invention is to provide a sash lock, which in its ordinary operation will permit the opening of a window sash to a certain extent, but not enough to allow an intruder to reach the sash lock from the outside of the window, and which will enable the sash when closed to be so secured as to prevent rattling, the whole operation being under the control of a single lever which is in position to be

readily manipulated by the operator. The sash lock comprises in its construction a ratchet bar having lateral extensions at its ends and adapted to be attached to one of the sashes of a window, and a pawl adapted to be attached to the other sash and having a normal tendency towards the ratchet bar when in installed position, a sash locking latch normally in the path of the lateral extensions of the ratchet bar, and a manipulating lever connected to both the pawl and the latch and adapted to actuate the pawl and latch in opposite directions.

James E. Duncan, Elton, La. **Combined Step and Extension Ladder.**—The present invention is designed to provide a novel construction of ladder adapted to be readily arranged to form either a step ladder or an extension ladder, and equipped with means for enabling it to be securely locked in its extended position. The device comprises a front ladder section provided in the upper ends of its side bars with recesses, a rear ladder section pivoted at the upper end of its side bars to the front ladder section at a point intermediate of the ends thereof and adapted to be arranged in an inclined position to provide a step ladder and in an upright position to form an extension of the front section, a transverse locking rod extending across the rear section and operating in slots thereof and adapted to engage the recesses of the side bar of the front section when the parts are arranged to form an extension ladder, braces pivoted at their rear ends to the rear section, and means for securing the front ends of the braces to the front ladder section when the parts are arranged to form a step ladder.

Charles E. King, Gray, Iowa. **Draft Equalizer for Cultivators.**—This invention has for its object to provide a draft device designed principally for use on riding corn cultivators or plows, and capable of enabling the horses to be hitched close to a cultivator and adapted, should one horse pull ahead of the other, to maintain an equal draft so that the horse in advance will not pull the cultivator sidewise. The invention includes upper and lower bearings mounted on the sides of the arch of a plow or cultivator and projecting forwardly therefrom, spaced upright rock shafts journaled in said bearings and provided at their upper ends with forwardly extending arms and having transversely disposed arms at their lower ends, a transverse bar located below the tongue of the plow or cultivator and connecting the upper arms of the rock shafts to cause the latter to move in unison, and singletrees connected with the lower transverse arms of the rock shafts.

Willard D. Baker, Rogers, Ark. **Automatic Door Operating Mechanism.**—It is the aim of the invention of this patent to provide a door operating device, designed particularly for use on doors leading from a dining room, kitchen, pantry or similar place, and equipped with means to be operated by the weight of a person to cause the opening of the door, and movable upward automatically to close the door when relieved of the weight of the person. The invention comprises a swinging door having a depending vertical pintle, an oscillatory gear arranged to oscillate in a vertical plane, a spring supported depressible platform, an approximately horizontal lever fulcrumed at a point intermediate of its ends and connected at one end with the platform and at the other end with the oscillatory gear, and gearing for transmitting motion from the oscillatory gear to the pintle of the door.



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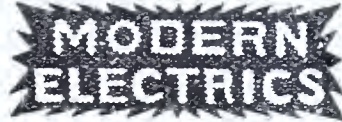
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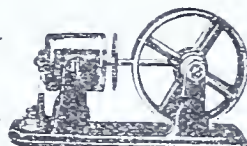
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## PATENTS AS CONTRACTS.

The patent systems of both England and America had their origin in royal grants, by which monopolies in trade or manufacture were conferred on a few favored subjects of the British Empire. In the infancy of commerce, when all mercantile enterprises were attended with great risk, either of life or capital, such privileges were bestowed by different monarchs upon particular cities or persons, in order to induce them to embark in the undertakings. In the course of time, because of the increasing number of royal grants, free competition both in domestic and foreign commerce was speedily destroyed, and English trade was confined to a few cities and persons. The evil reached its height in the reign of Queen Elizabeth. As a means of raising money for herself, these exclusive privileges were multiplied by her until the most common articles of consumption were brought under the control of monopolies.

From time to time efforts were made to remedy the evil by legislative action, but without success until 1623, when the famous Act against Monopolies was enacted by the British Parliament and received the sanction of King James I. By this statute all past monopolies were abolished, and the power of the crown to grant them in the future was explicitly denied, except in cases where such grants had been or should be made to the inventors of new manufactures, conferring upon them the exclusive privilege of practicing such inventions for a limited period of time. The grant of English patents for inventions dates from that time.

It was natural that the odium attaching to the grant of ancient monopolies should be visited on the patents granted to inventors, and it was not until the generations which had suffered from the ancient grievances had passed away, that the judges of the English courts, yielding to the pressure of in-

dustrial enterprise, laid aside the extreme doctrines and the rigid rules with which their predecessors had fought the battle of the people against odious privileges, and began to recognize inventors as public benefactors whose personal services and sacrifices merited liberal consideration in the courts. As a result of this change in judicial sentiment, the grant of a patent to an inventor was held to be a matter of right and not of favor, and the patentee was declared to be entitled to the enforcement of his privilege, whenever he had fairly given to the world the knowledge of the discovery he had made.

The right of an inventor to his exclusive privilege, in return for the benefit conferred by him upon the public, being once conceded, it necessarily followed as a natural sequence that the grant of letters patent was looked upon as creating a contract between the inventor and the public. This idea was first suggested by Lord Eldon in 1800, who, in a case before him, held that a patent was a bargain with the public and was to be construed on the same principles of good faith by which all other contracts were interpreted. Under the influence of this decision, the attitude of the English courts toward patentees gradually became more favorable and the strictness of the old rules was relaxed.

In the United States that extreme jealousy of the inventor's privilege, which characterized the attitude of the earlier English judges, has never been manifested: though in isolated instances judges have been found who are opposed to patents on general principles. The reason for this was that the U. S. courts did not approach the subject until after the ancient doctrines had been modified in favor of the patentee, and the true interest of the public had been recognized as best promoted by securing to him an immediate reward. In one of the earliest cases decided in this country (in 1831), the court adopted three fundamental principles, which have been followed in all subsequent decisions: First, that a patent creates a contract between the inventor and the public and that each party is bound to exercise good faith toward the other; second, that a patent is not granted to the inventor as a favor, but is a matter of right on his compliance with the conditions prescribed by law; third, that being intended for his benefit, both the patent and the law are to be construed in favor of the patentee.

Though the patent privilege is a monopoly, it is justifiable on the ground of public policy. Public interest is promoted by stimulating inventive genius. The grant of a patent removes from the inventor all inducement to conceal his discovery by affording him the same protection that could be obtained by the most rigid secrecy. It encourages him to make known his invention as the method of securing for himself the largest recompense. It gives to the whole public, after a short period of exclusive ownership by the inventor, the entire invention as a portion of that common

property in which all men may exercise an equal right.

A patent being regarded in the nature of a contract between the inventor and the public, there are certain obligations which each party to the contract assumes. The obligation of the inventor to the public is two-fold. First, the product of his inventive skill must be of such a nature that a patent may lawfully be granted on the same; it must be something that mere mechanical skill could not produce. Second, the invention itself must be fully communicated to the public. Nothing should be withheld.

The obligation of the public to the inventor is also two-fold. First, it must give to his exclusive right a legal sanction by the act of granting him a patent; second, it must afford him adequate protection and redress in cases where his rights are violated or are in jeopardy.

In making an application to the United States Patent Office, the inventor makes no disclosure of his invention to the public unless he obtains a patent. If the application is rejected, it is put in the secret archives of the Patent Office and the invention is never revealed to the public. If a patent is issued, the patent becomes a printed publication.

Viewing a patent as a contract and a justifiable monopoly, the duty of the Patent Office is to refuse the grant of patents, which are not within the purview of the patent law. In other words, the Patent Office should not grant a patent on something which is not worthy of patent protection. The Patent Office was created by Congress to act upon the applications for patents presented by inventors, and the Examiners of the Patent Office look upon themselves as judges, standing between the inventor and the public, to prevent on the one hand the issuance of improper patents, and to allow on the other hand the grant of patents on meritorious inventions.

The records of the Patent Office show that from the earliest times the proceeding to obtain a patent has always been a matter of controversy between the applicants and the Patent Office. This being true at the beginning, how much more so is it today, when the number of patents has gone well beyond the million mark, and the standard of mechanical skill, by the progress of the arts, has been raised to a very high point.

From the standpoint of a contract, it is the duty of the court to sustain a patent, unless it is made clearly to appear that the Patent Office has issued an improvident grant. We have sometime thought that courts were too ready to declare patents invalid. We have read decisions in which it seemed as though the court had gone out of its way to declare the patent void. That the Patent Office frequently makes mistakes in granting patents there is no doubt; and where a clear error is shown to have been made, the court is justified in declaring the patent void, but the court should always follow the rule, that to defeat a patent, the evidence must be such as to establish the defense beyond every reasonable doubt.

The Patent Office has a clearly-defined duty in the matter. On the one hand, it must protect the public against the grant of patents on inventions which are not patentable inventions, and on the other hand, it should grant to the inventor a patent where he has shown his right to possess the patent privilege. There are some divisions of the Patent Office which are extremely lax in the grant of patents. There are other divisions which go to the extreme of illiberality, and defeat many meritorious claims by technical objections and obstinate rulings. We sometimes think that the individual Examiners have too much authority and are given too wide a latitude in their decisions.

After it has been decided that a man has made a patentable invention worthy of patent protection, it should be the aim of the Patent Office Examiner to allow the patent as broad as the invention. Technical objections, such as multiplicity of claims, and alternate expressions should not be urged. The applicant should be given reasonable latitude in the drawing of his claims, because if they are not drawn broad enough the courts will not aid him in recasting the claims, and if they are drawn too broadly they will be declared invalid.

These considerations induce us to express the hope that the Patent Office in its various divisions will do what it can to aid meritorious inventors in obtaining patent grants which will protect the inventions disclosed by the inventors, so that the rights of the patentees may receive full protection in the courts.

## VALUE OF COMPETENT ATTORNEYS.

The Patent Office in its Rules of Practice advise applicants "to employ a competent attorney, as the value of patents depends largely upon the skillful preparation of the specification and claims."

The United States in a leading case said: "The growth of the patent system in this country has reached a stage in its progress where the variety and magnitude of the interests involved require accuracy, precision and care in the preparation of all the papers on which the patent is founded."

Notwithstanding these warnings, we often find inventors prosecuting their own cases before the U. S. Patent Office with no clear idea of how to draw the claims so as to protect the real invention involved. The government fees on a patent aggregate \$35. In many cases, the payment of a fee of from \$35 to \$50 to an attorney will insure for the inventor a patent which will protect the invention.

However, incompetence is found even among attorneys, and as a general rule their competence is in inverse proportion to their display of printer's ink in lauding their own claims.

Cases are almost daily brought to our attention which emphasize the importance of exercising care in the selection of an attorney and having the application properly prosecuted before the Patent Office. An inventor of our acquaintance procured a patent



in 1902. After the issuance of the patent, he started to manufacture it and went to some expense in putting the device on the market: but not meeting with the success that he expected, the manufacture of the invention was dropped. He had a good patent, but the construction of the device was not perfect from a manufacturers' standpoint. The patent was allowed to rest. Recently another inventor applied to an attorney for a patent along the same line as the first inventor. A search was made of the records of the Patent Office, and the patent of the first-named inventor was brought to light. It was found upon examination that the claims of the patent already issued dominated the invention of the second inventor, so that the article of the latter could not be manufactured without infringing the patent of the first inventor. As a result, the second inventor got in touch with the first inventor and offered to purchase the patent. Negotiations were concluded and the patent was sold to the second inventor.

The only reason why the second inventor purchased the patent was because there were claims in the patent which were broad and covered the invention of the second inventor. If the patent had possessed weak claims, it would have been worthless to the second inventor and the patent would have been allowed to slumber: but because of the fact that the first inventor had been represented by an attorney who understood his business and procured claims which covered the invention, the patent was purchased and is likely to be of considerable value to the second inventor in manufacturing his device. Although over ten years had elapsed since the issuance of the patent to the first inventor, the claims of the patent were so carefully drawn as to cover and embrace the invention of the second inventor.

The moral of this is that no invention is too small to justify careless consideration, and the best interests of an inventor require that he should be properly represented before the Patent Office when applying for patent protection.

#### CONDITION OF WORK IN THE PATENT OFFICE.

The United States Patent Office Gazette contains weekly a statement of the applications under examination. In the Official Gazette of Sept. 16, 1913, the condition of work at the close of business Saturday, Sept. 13, 1913, was given. It is interesting to note the condition of work at that time. There were just 29,952 applications awaiting official action. This included the "new" cases as well as the "amended" applications.

A "new case" is one on which no official action has been rendered. An "amended" application is one which has been once given an official action and has been sent back to the Examiner for further examination.

The report gives the oldest new application and the oldest amended ap-

plication awaiting Office action in the forty-three divisions of the Patent Office. The oldest new case was filed Dec. 30, 1912, while the oldest amended case was amended May 1, 1913.

There were eight divisions of the Patent Office which had over 1000 applications awaiting action. Division 15, which considers bread, pastry and confection making, coating, fuel, glass, laminated fabrics and analogous manufactures, paper making and fiber liberation, plastic block and earthenware apparatus, plastics, had 1613 applications awaiting official action.

Division 12, which considers elevators, journal boxes, pulleys and shafting, lubrication and machine elements, had 1610.

Division 10, which considers carriages and wagons, had 1225.

Division 40, which considers baggage, bottles and jars, check controlled apparatus, cloth, leather and rubber receptacles, deposit and collection receptacles, metallic shipping and storing vessels, package and article carriers, paper receptacles, special receptacles and packages, and wooden receptacles, had 1511 awaiting official action.

Division 28, which passes upon internal combustion engines, had 1059.

Division 37, which examines electric lamps, electricity, conductors, conduits, electricity, general applications, had 1049.

Division 36, which examines driers, geometrical instruments, measuring instruments, photography, had 1000 applications.

In new work, division 37 had the oldest new case under consideration, the application having been filed Dec. 30, 1912, and not having yet received an official action. Next was division 15 in which the oldest new case was filed March 17, 1913. The next was division 7 in which the oldest new case was filed March 25, 1913. The next was division 9 in which the oldest new case was filed March 31, 1913.

There were ten divisions considering new cases filed in May: ten divisions had under consideration new cases filed in June: nine divisions were considering new cases filed in July, while there was only one division (Division 3) which was examining new cases filed in August. Thus, it will be seen that the majority of the divisions were several months behind in new applications.

In amended work or applications in which the Patent Office has already given one official action, there was only one division (Division 3) considering amended cases which were amended in September. Six divisions were considering amended cases amended in August. Eighteen divisions had under consideration amended applications amended in July. Eleven divisions were considering amended applications amended in June, while six divisions were acting upon old cases amended in May.

It seems difficult for inventors to understand the reason why in some cases patents are allowed in a short

time, while in other instances they are delayed for many months. A consideration of the foregoing statement will make clear to any one why it is that there is such a difference in the time required to obtain patents. Where an inventor has to wait nearly six months for the first official action and two or three months for each action on an amendment, a year or two may slip around without the application making any material progress towards an allowance.

While the condition of the work in the Patent Office is not improving, this is due to the fact that the vacation season is hardly over. It is hoped and believed that under the new heads of the Patent Office, matters will improve. It is thought that a readjustment of the work would be helpful. Some of the Examiners seem to be heavily burdened, while in other cases the work is too light. Some shifting of the work could be effected with advantage to the Patent Office.

#### Cold Light.

In solving one of the riddles of Nature—that of the cold light, as exemplified by the firefly—another of her mysteries has been employed. The fact that material objects seem to get "tired" has to be reckoned with by those who work with them, but has never been explained by science. Razors, watch springs, cables, have to be given an occasional rest, and something of the same sort has been observed in tools and various articles. Without attempting to find a reason for this condition, a French inventor has simply accepted it and utilized it in working out the puzzle of the cold light. How he has done this is interestingly described in a recent number of *Harper's*. Cold light is cold, he says, because of the application made to the incandescent electric lamp of the principle of repose. By cutting off the current from the tungsten filaments successively and allowing them to rest, he has made it possible for the heat produced by the incandescence of the filament to dissipate during periods of rest which succeed one another at short intervals, and he has greatly increased the number of volts passing into the lamp without destroying the filament, because of the periods of repose. The more volts you pass into a lamp the more light it gives and the less electricity it needs for a given amount of light. By this new principle the inventor has obtained a light characterized not only by its being cold, but also by the feeble amount of energy required to produce it, since it takes a hundred times less current than an ordinary lamp, and also contains cold ultra-violet rays requiring a hundred times less electricity than the hot ultra-violet rays obtained by the usual method.

Cold light, continues M. Dussand, enjoys five chief advantages over ordinary light. There is no danger of setting anything on fire. It can be produced by any kind of electric system. It consumes much less current, as concentrating lenses and reflectors are employed. Even a tiny battery will answer. Celluloid films can be employed with this light for the projec-

tion of stationary pictures, without running the risk of fire. Thus glass negatives, which are so refractory to mechanical production, can be dispensed with. The application of cold light to moving picture shows does away with the danger of conflagration. A small, cheap lamp replaces the expensive, cumbersome and elaborate process now in use. Because the light is cold, a film can be slowed down or even stopped, thus fixing the picture on the screen and letting the eye repose, without interrupting the spectacle, at a moment when the film represents only objects that are stationary. In this case five dollars per minute is economized, for more than twenty yards of film have to be reeled off in order to project, during a single minute, an object in repose. Thus is obtained a practical combination of fixed and moving pictures, which produces most artistic effects. The cold light does away with the magnesium flash light. It is admirable for light house purposes, as the employment of a commutator would obviate the need of several lenses and of a heavy revolving mechanism. For military and naval search lights, cold light furnishes divergent beams in such a mass that they constitute veritable eyes for submarines, flying machines, etc.

This new method will be found useful in medicine. The arc light must be held at a relatively great distance from the object to be illuminated, whereas a cold light source can be approached very close to it. The hand brought in contact with it becomes transparent, the flesh and bones taking on the appearance of a whitish pink body. This renders possible, for the first time, a spectroscopic analysis of the blood circulating in a sick person during the different phases of the treatment.

Cold light has been perceived by a person afflicted with blindness, but preserving vestiges of sight which had not been suspected because of lack of a sufficiently strong source of light, or because this light, on account of its heat, could not be brought near enough to the eye. The most inflammable substances, animalcula and plants which cannot support the least heat, colors and crystalizations very susceptible to thermal effects, can be illuminated by research with an intensity unknown to any other method. A letter can be read when enclosed in twelve thicknesses of envelope. It has long been common in the museums of natural history to study the ways of insects which present our own industrial activities. With cold light, insects have been projected to the size of men, without killing them. It also facilitates the use of microscopic negatives. Many of the libraries of the large cities of Europe have decided to make exchanges of their contents. By the use of this method, a dozen volumes of three hundred pages each can be carried in the vest pocket, and the daily edition of a newspaper during a quarter of a century could be put into a cigarette case.

THE INVENTIVE AGE contains sound advice to inventors and patentees. For lack of such advice many have lost money. Subscription price, one dollar a year.



**A** CLASSIFIED list of Patents issued during the month appears in each issue of the INVENTIVE AGE. This keeps inventors and manufacturers posted in the art in which they are most interested.—We will send, postpaid, to any address, printed copies of any U. S. patent, with specifications and drawings, upon receipt of 10 cents per copy.—Please give correct data in ordering.—Address.

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Engine igniting mechanism, Explosive ..... W. F. Davis  
Engine starter ..... P. W. Hodgkinson  
Engine-starting and reversing apparatus, Internal-combustion ..... J. Hang  
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Fare register ..... L. Ehrlich  
Feed-controlling device ..... D. W. Shollenberger  
Fence post and wire clamp, Combined ..... G. H. Meyer  
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 displaceable inking ribbon, Workman's..... R. Burk  
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Vehicle curtain..... W. H. Goodfellow  
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 Valve mechanism, Float..... A. S. Failing  
 Valve-operating mechanism..... O. H. Theelen  
 Valve, Rotary..... J. Shaw  
 Valves, Device for automatically closing locomotive..... T. W. Griffin et al.  
 Vapors, Attachment for distributing..... E. E. Siefert  
 Vault head..... J. G. Kurz  
 Vehicle..... T. A. Klenke et al.  
 Vehicle for transport and tractive purposes, Self-propelled..... H. P. Sanderson  
 Vehicle gear, Double reach..... R. M. Arnold  
 Vehicle seat..... A. F. Draper  
 Vehicle shock absorber..... J. F. Mamet  
 Vehicle spring..... C. S. Green et al.  
 Vehicle suspension..... T. A. Klenke et al.  
 Vehicle wheel..... H. G. Sarbach  
 Vehicles, Cushioning means for..... B. P. Cooper  
 Vehicles, Tail, number, and safety signal for..... C. F. Hamilton  
 Vending machine..... F. A. Johnson  
 Vending machine..... F. Q. Rast  
 Vending machine..... J. A. Birsfield  
 Vessel, Dispensing..... A. Heldrich  
 View finder..... A. A. Rutan et al.  
 Voting machine..... A. McKenzie  
 Voting machine (2 pats.)..... J. H. Dean  
 Voting machine..... J. H. McElroy  
 Wagon body..... W. A. Melrose et al.  
 Wagon brake..... W. Siverd  
 Washing machine..... A. C. Kenworthy  
 Washing-machine cylinder..... H. Budd  
 Water, &c., Apparatus for the purification of..... M. D. Avery  
 Water closet, Siphon (2 pats.)..... A. Cochran  
 Water gage..... S. Fukutome  
 Water heater, Portable..... O. W. Tucker  
 Water wheel..... J. D. Ripson  
 Wave motor..... J. Frame  
 Weaving..... M. J. Whittall  
 Weighing apparatus, Automatic..... W. E. Hopkins  
 Welding apparatus, Electric..... L. W. Chubb  
 Welding machine..... H. H. Gravell  
 Welding machine, Electric..... A. C. Taylor  
 Welt-butt-tacking machine (2 pats.)..... E. L. Keyes  
 Wheels, Mud-lug for traction..... R. Schwesinger  
 Whiffletree and trace fastener, Combined..... P. M. Lossing  
 Whip socket..... C. T. Funk  
 Wind wheel..... J. H. Engberg  
 Winding machine driving mechanism..... G. Sipp  
 Window frame..... G. L. Gearing  
 Window frame, Shop..... M. Freud  
 Window screen..... A. H. Mix  
 Window screen..... F. A. Swanson  
 Wire guide..... J. J. Warren  
 Wire stretcher..... R. A. Lyeria  
 Wires in conduits and analogous purposes, Jointed rod for inserting..... J. J. Hess  
 Woods, Scientific curing of..... F. A. Palen  
 Woodworking machine (2 pats.)..... G. A. Turner  
 Work support or holder..... L. D. Rowell  
 Wrench..... R. E. Sutherland  
 Yoke or whiffletree coupling, Neck..... O. M. Purcell  
 Zinc from blue powder, Producing..... W. F. Blecker

Aeroplane..... N. Clark et al.  
 Aeroplane..... J. A. Steinmetz  
 Aeroplane control..... L. H. Ray  
 Air cleaner and ventilator..... H. M. Robertson  
 Air craft, Apparatus for defending against..... J. A. Steinmetz  
 Air-drying and sterilizing device..... R. P. Van Calcar et al.  
 Amalgamator..... A. L. Lawson  
 Annunciator..... C. M. Cagle  
 Automobile protecting device..... F. F. Backstrom  
 Auxiliary brake..... H. C. Conroy  
 Axle-lighting system, Car..... J. L. Woodbridge  
 Axle, Spring..... S. Nottingham  
 Axle structure, Motor cycle..... F. P. Pentrest  
 Barium and strontium compounds, Manufacturing..... A. W. Ekstrom  
 Batteries, Negative-pole plate for storage..... W. Morrison  
 Battery-box construction, Vehicle..... H. H. Kennedy  
 Bean-hulling device..... G. J. Lange  
 Bean-sorting machine..... C. E. Smith  
 Bearing for car axles..... J. Fredrickson  
 Bearings, Making ball..... J. Schmid-Roost  
 Bed pan..... J. Griffin  
 Bed, Sofa..... F. Bennett  
 Beds, Device for moving disappearing..... C. O. Pelletier  
 Beehive casing, Supplemental..... B. T. Bosserman  
 Beet crowner..... J. B. Dawson  
 Belt and pad, Sanitary..... A. Schulz  
 Blade..... J. H. Kelly et al.  
 Boat-canopy support..... R. Kay  
 Boat, Collapsible..... F. Kankkonen  
 Boat-hoisting and launching machinery, Life..... B. F. Sargeant  
 Boat, Life..... F. W. Martin  
 Boat, Life..... B. F. Sargeant  
 Boat, Submarine or submersible torpedo..... E. L. Peacock  
 Bobbin cleaner..... W. Lonzo  
 Boiler-furnace and feed-water heater..... J. R. Surrall  
 Boiler stand, Range..... C. L. Holden  
 Boll weevils, Machine for catching and gathering..... J. E. Hagler  
 Books, Reinforcing device for the backs of paper-covered..... F. E. Williams  
 Bottle, Milk..... A. G. Brandt  
 Bow..... F. W. A. Shultz  
 Box-capping machine..... C. F. Jenkins  
 Box machine, Adjustable..... H. A. Inman  
 Box-strap tightener..... W. M. Brooks  
 Bracelet..... J. Olpp  
 Brake..... J. Gaines  
 Brake lever..... C. T. Harris  
 Breast supporter..... M. L. Volk  
 Bridge..... H. E. Matteson  
 Bridge-blind, Detachable..... F. Reitmeyer  
 Brush, Fountain..... J. B. Feiler  
 Building construction..... W. L. Collins  
 Buoy, Bell..... J. Gillis  
 Butter and cream, Manufacturing sterile..... E. W. Kuhn  
 Cabinet, Cloth..... C. M. Thompson  
 Cabinet, Lace..... W. Morrison  
 Canal lock..... C. E. Gillette  
 Candy-cooling apparatus..... E. J. Brach  
 Car bumper, Self-coupling mine..... B. Stark  
 Car, Convertible box..... H. W. Curry  
 Car coupling..... A. J. Bazeley  
 Car-coupling-operating mechanism..... W. E. Coffin  
 Car couplings, Uncoupling mechanism for..... A. J. Bazeley  
 Car door..... E. Posson  
 Car fender..... E. Bosnyakovits  
 Car-gate or door-operating mechanism, Passenger..... C. A. Remelius  
 Car, Hopper..... F. L. Irwin et al.  
 Car, Passenger..... C. A. Remelius  
 Car roof..... J. J. McCarthy  
 Car, Tank..... C. L. Kennicott  
 Car wheel..... H. E. Wilke  
 Cars, Cot and stretcher holder for railway..... G. Fordham  
 Cars, Means for generating motive fluid for motor..... F. H. Stanard  
 Carbine hooks, Manufacture of..... G. Bischoff  
 Carbrerter..... J. P. Lavigne  
 Carbrerter..... A. A. Steward  
 Carbrerter..... A. B. Browne  
 Carbrerter..... W. F. Schulz  
 Cartridge fuse, Electric..... G. W. Frazier  
 Casing cover and locking mechanism therefor..... A. Campbell  
 Cellulose compound and making same, Non-inflammable..... W. G. Lindsay  
 Changeable indicator (5 pats.)..... J. Hutchinson  
 Cigar cutter..... S. Woods  
 Cigar-cutting machine..... T. E. Fearon  
 Cigar holder, Invisible..... D. D. Getman  
 Clamping device..... J. E. Cunin  
 Clip..... E. J. Valentine  
 Clock, Alarm..... G. Bley  
 Cloth-piling machine..... M. L. and C. M. Shapera  
 Clothes-line fastener..... E. J. Eckhardt et al.  
 Clothes-line hook..... J. Mitchell  
 Coal-leveling machine..... P. H. Douglas  
 Coal-transferring apparatus..... C. Marcelle  
 Cock and drain valve, Stop..... J. F. Lamping  
 Cock, Ball..... W. S. Rice  
 Cock, Plug..... J. Matschke  
 Commutator brush for electric generators and motors..... P. P. Nungesser  
 Composing and casting machine, Typographical..... H. Pearce et al.  
 Composing machine, Typographical..... J. G. Holbourns  
 Composing machine, Typographical..... J. R. Rogers  
 Composition of matter..... E. Eckschlager  
 Compressing machine, Material..... A. R. England  
 Concrete machine..... W. L. Canniff  
 Concrete-mixer discharge device..... A. D. Mosby  
 Conveyor or stirrer..... D. J. Nevill  
 Corner clamp for show cases or the like..... J. W. J. Egelund

Corrugating and slitting machine..... H. Jones  
 Cotton cleaner..... W. A. Patterson  
 Cotton picker..... T. E. Straus  
 Cotton picker..... R. C. Teel  
 Couch, Folding..... J. Hoey  
 Crossing signal..... W. A. Hesse  
 Culinary utensil..... R. Washburn et al.  
 Cultivator and weed killer, Combined..... L. E. Sherwood  
 Curbing, Street..... I. E. Brown  
 Curtain stretcher, Collapsible..... A. Harrington  
 Cushion wheel and pump therefor..... W. L. Olmstead  
 Cuspidor carrier..... E. F. Schaub  
 Cutting and folding machine (2 pats.)..... E. H. Cottrell  
 Cutting mechanism..... L. C. Palmer  
 Cutting mechanism..... C. F. Smith  
 Dehorning apparatus..... G. A. Windus  
 Dental tool..... F. W. Wallace  
 Dental tool guard..... J. H. Abbott  
 Derailer..... E. H. Allfree et al.  
 Dieling-out machine..... A. H. Bradstreet  
 Disinfectant holder..... F. A. Creed  
 Display frame, Dress..... C. M. Anderson  
 Display rack for roofing..... H. M. McCord  
 Distributer..... F. J. Brink  
 Dividing head..... O. Rossler  
 Door and step-operating mechanism, Combined..... H. Rowntree  
 Door bolt, Safety..... B. F. Foss  
 Door check, Liquid..... T. Mooney  
 Door frame..... W. E. Charron et al.  
 Door, Grain..... E. Posson  
 Door hanger..... J. Olman  
 Door hanger..... J. C. Prim  
 Door hanger..... J. C. Flinger  
 Doubletree, Center bearing for..... C. E. Jones  
 Draft apparatus, Check for..... O. F. Battey  
 Draft appliance..... F. M. Whitaker  
 Draft controller, Automatic..... A. W. Arnold  
 Draft gear, Friction..... J. F. Courson  
 Drain, Land (Reissue)..... E. W. Appelman  
 Drawer slide, Extension..... W. T. Callaghan  
 Drawing-in mechanism..... P. R. Gley  
 Drilling apparatus, Rotary..... T. J. Griffin  
 Drilling bit, Under..... H. W. English et al.  
 Drilling machine, Pneumatic..... J. H. Bondy  
 Drinking cup, Antiseptic..... C. E. Shirey  
 Drying plant..... A. O. Dupuy  
 Dump, Crossover..... O. V. Greene et al.  
 Dyeing..... J. H. Skitt  
 Eaves construction..... J. F. Gorman  
 Electric controller..... A. E. Berdon  
 Electric machine, Dynamo..... A. B. Field  
 Electric switch..... E. M. Hewlett  
 Electrical distribution system..... J. L. Woodbridge  
 Embroidered apparel..... W. Freed  
 Embroideries, Production of..... J. Groetschel  
 End-cell switch..... J. W. Achard  
 Engine..... F. J. Zellar  
 Engine-cranking device..... O. T. Isaacson  
 Engine igniter, Internal-combustion..... M. P. Ryder  
 Engines, Fuel pump for internal combustion..... L. C. Hamke  
 Engines, Means for starting internal-combustion..... A. D. Kenyon et al.  
 Ether-producing apparatus..... D. Annarantone  
 Expansion tank..... F. C. Smith  
 Eyeglass-lens fastening..... F. H. Kahn  
 Fastener..... J. Staggs  
 Faucet drinking-spout attachment..... P. A. Schuchart  
 Feed-cutter conveyer..... M. Freeman  
 Feed trough..... F. J. Schisler  
 Feeder, Poultry..... M. H. Hinkle et al.  
 Fertilizer composition, Making a..... O. Bennett  
 Fertilizer distributor..... A. M. Word  
 File wrapper..... V. Munzer  
 Fire and waterproof composition..... C. J. Fater  
 Firearm, Recoil-operated..... L. H. Dolley  
 Firearms, Bolt-breech for..... B. Goebel  
 Floor cleaner..... P. W. Ziegler  
 Fluid heater, Electric..... W. H. Fox  
 Fluid-heating or cooling apparatus..... J. C. Spotts  
 Flying machine..... H. E. Hawes  
 Flying machine..... C. F. Jenkins  
 Food product consisting of a jelly base..... P. R. Boyles  
 Foot and hand rest for toilet seats..... W. B. Simonson  
 Foot rest..... N. H. Hassel  
 Footwear, Article of..... J. H. Pearce  
 Formaldehyde, Manufacture of..... M. J. Kusnezow  
 Furnace door..... C. J. F. Johnson  
 Furnaces, Air regulator for steam boiler..... A. Cotton  
 Furnaces, Means for adjusting the doors of boiler..... G. de Grahl  
 Fuse, Electrical..... H. W. Young  
 Fuse holder..... H. W. Young  
 Gage fitting, Water and like..... R. Klinger  
 Garment hooks, Lock for..... R. H. Vesey  
 Garter clasp..... J. S. Blinn  
 Gas, Apparatus for extracting tar from..... F. N. Wagner  
 Gas cut-off, Automatic..... C. R. Lott  
 Gas engine, Double-ended..... O. Hardy  
 Gas generator, Acetylene..... W. Webb  
 Gas-meter-connection lock..... L. R. Quigley  
 Gate-operating mechanism..... J. F. Butler  
 Gearing, Variable-speed friction..... E. P. Cowles  
 Glover holder..... R. Neckerman et al.  
 Gown, Maternity..... E. Miles  
 Grader, Road..... H. K. Clemons  
 Grain loader and unloader..... R. O. Welch  
 Grain-purifying apparatus and process..... E. H. Reynolds  
 Grain-separator feeder..... W. C. Leonard  
 Grandstand, Folding..... M. Paquette  
 Grease and similar matter from wool, skins, textiles and other materials, Extraction of..... C. R. Mayo  
 Grinding machine..... L. Axtell  
 Grinding machine, Rail..... E. P. Simard et al.  
 Gun rod, Telescopic..... T. A. Southgate  
 Hammer..... H. H. Frey  
 Harness, Restraining..... R. W. D. Jorgensen  
 Harrow, Flexible..... F. E. Davis et al.  
 Harvester, Beet..... G. L. Shane  
 Harvester, Corn..... E. T. Cox  
 Harvesting machine, Cotton..... J. F. Appleby  
 Hat-pin protector..... E. Bonde  
 Heating system, Steam..... J. L. Sparks et al.

Heddle mechanism..... P. Mollon et al.  
 Heel-seat beater..... S. A. Krowson  
 Hinge..... W. J. Hester  
 Hinge and stop, Oven-door friction..... M. A. Passons  
 Hinge, Casement..... S. R. Parkes et al.  
 Hoof-packing, Sanitary..... W. E. Rawson  
 Hook and eye..... S. E. Atchinson  
 Horses' hoofs, Device to trim..... M. Joyce, Jr.  
 Horseshoe creeper..... D. Brain  
 Hose coupling..... H. H. Hewitt  
 Hot-air register..... J. Harmon  
 Hot plate..... S. A. Schewzik  
 Hub-attaching device..... H. Noster  
 Hulling and grinding apparatus, Fire-beating attachment for..... G. G. Barker  
 Ice-cutting machine..... S. J. Ferriss  
 Incubator..... G. S. Shelton  
 Induction motor..... K. A. Panly  
 Insole-filling machine..... W. A. Zickerman  
 Insulated handles for vessels and utensils, Manufacture of..... F. A. Antoni  
 Insulating-tube machine..... E. Heally  
 Insulators, Wire clamp for..... J. H. Hubbard  
 Internal-combustion engine..... S. Lake  
 Iron, Making a material having the general properties of wrought (2 pats.)..... B. C. Lauth  
 Ironing board..... S. A. Koons  
 Jar closure..... A. Richards  
 Journal bearing..... P. A. Solen  
 Journal-box-lid fastener..... C. W. Booth  
 Kite..... A. J. M. Recklin  
 Kite reel..... G. D. Christner et al.  
 Knife-edge bearing..... J. Hopkinson  
 Knob handle lock..... H. Anderson  
 Lace-fastening device for shoes, gloves and the like..... J. T. Dresler  
 Laces Manufacture of..... J. E. Dudson  
 Lamp bulb and diffuser, Combination electric..... E. L. Frenot  
 Lamp-cord adjuster and the like..... J. Sachs  
 Lamp, Inverted high-power gas..... H. Snssman et al.  
 Lamp socket..... C. D. Meeker  
 Land roller..... A. Presnell  
 Lantern..... F. N. Thiel  
 Lantern burner..... F. Dietz  
 Lantern, Tubular..... F. Dietz  
 Last..... W. A. Krentler  
 Lathe-actuating mechanism..... R. K. Le Blond et al.  
 Lavatory..... T. A. Legge  
 Leather-working machines, Pneumatic roll for..... H. A. Holder  
 Leveling instrument..... O. Pare  
 Life-saving device..... T. Miyake  
 Lifting device..... B. E. Smith  
 Lighting fixture..... L. W. Young  
 Lime, Slaking..... W. Schnlthess  
 Line-casting machine..... J. R. Rogers  
 Line protector..... A. U. Montgomery  
 Line reel..... M. Fitch  
 Liquid cooler or heater..... C. B. Dalzell et al.  
 Liquid gage..... H. D. Flegel  
 Locomotive boiler..... G. B. Phillips  
 Locomotive, Electric..... G. M. Eaton  
 Loom reed, Divided..... C. Moriggl  
 Loom stop-motion..... A. Kean  
 Lug, Terminal..... H. J. Wiegand  
 Magnetic and centrifugal brake, Combined..... G. F. Atwood  
 Magnetic separator..... G. Ulrich  
 Mail catcher and deliverer..... R. L. Garrison  
 Mail-bag-catching and delivery apparatus..... E. A. Pieters  
 Mail-bag deliverer..... H. W. Bender  
 Mail-bag-delivery apparatus..... G. N. Döntiel  
 Mail crane..... W. Johnston  
 Mandrel for paper-winding machines..... G. B. Warner  
 Manure spreader..... J. C. and W. J. Pope  
 Marker, Land..... W. D. Jones  
 Match..... W. A. Fairburn  
 Matrix-setting and line-casting machine..... H. Degener  
 Matrix-setting and type-line-casting machine..... H. Degener  
 Mattress, Spring..... G. Hogg et al.  
 Meat tenderer..... S. S. Phelps  
 Metallic joint and making the same..... F. G. S. Price  
 Milk condenser..... S. P. Hay  
 Milk-pasteurizing apparatus..... H. Feldmeier et al.  
 Moistener and sealer, Envelope..... W. H. Seddon  
 Mold..... F. H. Forbis  
 Mouth prop..... J. H. Abbott  
 Mower, Lawn..... W. E. Graham  
 Muffler..... P. J. Collins  
 Muttler, Engine..... P. J. Collins  
 Multiple-expansion engine..... F. F. Nickel et al.  
 Music-leaf turner..... J. Johnson  
 Music-leaf turner..... J. W. Boltz  
 Music, Means for interpreting player-piano..... C. S. Jassey  
 Music stand..... J. Hybak  
 Musical instrument..... W. P. Dun Lany  
 Name and number plate..... H. E. Balm  
 Nautical indicating device..... O. L. Burdett  
 Necktie holder..... D. L. Almansa  
 Nest, Trap..... W. J. Holly  
 Nickel, Electrolytically recovering..... H. L. Wells et al.  
 Nozzle, High-pressure..... W. H. Gleason  
 Nut lock..... E. B. Webb  
 Nut lock..... E. H. Ballou  
 Nut lock..... J. H. Riviere  
 Nut, Lock..... D. E. Garrett  
 Oiling device..... H. N. Motesinger  
 Ordnance, Breech-loading..... A. T. Dawson et al.  
 Ore concentration..... E. H. Nutter et al.  
 Organ valve..... W. E. Filcher  
 Overseaming mechanism..... J. E. Fefel  
 Paint remover..... H. A. Gardner  
 Panel structure..... W. Siebert  
 Paper tube..... G. B. Streit  
 Penholder..... C. W. Boman  
 Pens and pencils, Retainer for fountain (Reissue)..... L. D. Van Valkenburg  
 Phonograph..... P. Catucci  
 Photographic, washing apparatus..... T. Buckland  
 Picture-machine shutter, Moving..... A. C. Niles  
 Pile drill, Foundation..... E. W. Minter  
 Pile planking of rolled figured iron..... P. Schiffler  
 Piling, Interlocking sheet..... J. W. Sederquist  
 Pipe fitting..... C. R. Byam



- Pipe stopper, Waste.....I. Anderson  
Planter.....C. H. Dooley  
Planting machine.....W. L. Selleck  
Plow.....H. and W. M. Oldendorph  
Plow fender.....C. L. Brumfield  
Plumbing fixture.....I. A. Mann  
Pocket.....H. Bakke  
Post-hole digger.....N. Erzig  
Power-press safety guard.....J. Wright  
Power-transmission device, Variable-speed.....F. A. Pfeiffer  
Power transmitter.....F. M. Prather  
Priming cup.....G. F. Conner  
Printing presses and like machines, Stack-  
ing mechanism for.....J. A. Engel  
Printing surfaces, Producing.....R. Hajek  
Printing, washing and dry machine, Com-  
bined.....C. F. Pease  
Propeller, Boat.....H. Taylor  
Pump (5 pats.).....R. Conrader  
Pump.....K. M. Stewart  
Pump, Centrifugal.....R. Bowen  
Pump governor, Electric.....W. V. Turner  
Pump, Pneumatic.....G. S. Lane  
Pump-regulating mechanism.....J. Klopstein  
Pump, Two-stage compression.....G. J. Spohrer  
Pump valve, Well.....T. B. Wilkinson  
Radiator.....M. J. Farquhar  
Radiators, Foot rest for.....E. W. Beyer  
Rail fastener.....W. E. O'Brien et al.  
Rail joint.....C. W. Drake  
Rail tie, Metallic.....J. H. Cox  
Railway and tramway tie or sleeper and  
chair.....W. P. Beavan  
Railway frog.....W. K. Wertz et al.  
Railway gate.....E. E. Combs  
Railway-rail chair.....P. Hadley  
Railway switch.....H. Wilkins  
Railway tie and rail chair.....G. H. Shane  
Railway-tie plate.....J. W. Chapman  
Range and stove attachment.....J. J. Griffith  
Ratchet drill.....P. Peterson  
Razor, Safety.....W. J. Bauer  
Reading apparatus.....J. Steenson  
Receptacle top.....W. G. Kendall  
Refrigerator.....A. Fink  
Regulator.....W. C. Beam  
Resilient wheel.....C. Andersen  
Resilient wheel.....O. E. Casey  
Riding machine.....J. H. Torney  
Rim, Demountable.....W. J. Lane  
Rock-breaking shovel.....O. S. Proctor  
Rock-drilling machine.....D. S. Waugh  
Sad iron.....L. E. Smith  
Sash and casing, Window.....A. H. Newpher  
Sash and door clamp.....F. J. Lynch  
Sash lock.....C. C. De Lappe  
Saw-blade clamp to a saw frame, Securing  
a.....R. Miller, Jr.  
Sawing machine.....W. J. McSorley et al.  
Sawing-machine ripper.....J. B. Rivenbark  
Scouring and finishing tool.....A. Smilovetz  
Screw jack.....R. Fortier  
Seal for sacks.....H. M. Jones  
Seal for sewerage systems, Automatic back-  
surge.....I. Ibbeken  
Sealing attachment for pumps.....W. C. Pritchard  
Search light for umbrellas.....A. J. Downey  
Seating.....E. G. Budd  
Sectional case, Knockdown.....O. B. Rowlette  
Seed shaker separator, Cotton.....R. W. McLean  
Seed tester.....E. C. Schmidt et al.  
Separation of solids, Apparatus for grav-  
ity liquid.....F. I. Du Pont  
Separator.....J. R. E. Sievers et al.  
Sewing-machine thread-controlling device.....R. G. Woodward  
Shade carrier, Electric.....J. H. Ormrod et al.  
Shade roller, Window.....T. M., Sr., and T. M. Anderson  
Shock absorber.....T. F. Scott  
Shuttle threader.....G. H. Hull  
Sifter.....W. B. Wills  
Sifter and mixer, Flour.....S. B. (Sites) Newcomer  
Signal transmitter, Multiple.....C. E. Beach  
Signaling apparatus for tramway and other  
cars, Street.....R. F. Murphy  
Signaling device for locomotives.....C. H. Cobb  
Signaling system.....C. A. Larson  
Skylight, Sliding.....A. W. Pirie et al.  
Sliding seat.....W. J. Steffel  
Smelting furnace.....C. A. Kuenzel  
Smoke purifier.....H. J. Delaney  
Snow plow.....J. D. Beaver  
Soldering body for joining electric conduits  
or the like.....C. E. Egner  
Solution control, Automatic intermittent.....C. E. Miller  
Sound-recording and reproducing machine.....W. W. Zackey  
Spark plug.....C. H. Duffy  
Speed-controller for motor vehicles.....J. Coplon  
Speedometer.....W. H. Zachman  
Speedometers, Driving gear for.....A. W. Wessoleck  
Spigot.....E. W. Brague  
Spools for tuft-yarn carriers.....G. F. Hutchins  
Spring wheel.....E. E. Kerns  
Stalk cutter.....D. D. Jackson  
Stamp, Registering.....M. G. Standley  
Stapling device.....C. A. Palmgren  
Station indicator.....C. W. McKenzie et al.  
Steam shovel.....W. Brimfield  
Stone and like material, Treating.....H. W. Hemingway  
Stove and range, Gas.....C. W. Callahan  
Stoves, Hot plate for.....W. E. Holder et al.  
Strapping machine, Automatic.....E. E. Slagle  
Swimming appliance.....J. T. Lamb  
Switch mounting, Flush.....M. Guett  
Switch-operating mechanism, Electric.....O. N. Wiswell  
Switch stand.....T. E. Calvert  
Switch-throwing device.....J. H. Schmid  
Switch yard for gravity systems.....R. Pfeil  
Syringe, Vaginal.....H. S. Williams  
Tab, Detachable.....P. MacGregor  
Tachometer, Magnetic.....A. B. Cadman  
Talking machine.....C. Lindstrom  
Telegraph display signal.....F. W. Wood  
Telemeter.....O. Eppenstein  
Telephone-connection pole, Train.....W. Leach  
Telephone-receiver casing.....L. Swanson  
Telephone register and lock-out device.....C. V. Riehey  
Telephone system.....M. E. Gronvich  
Telephone transmitter.....J. Collins  
Telephony.....S. G. Brown  
Telescope, Double.....O. Mackensen  
Tellurian.....W. F. Gunson et al.  
Temperature regulator, Automatic.....B. F. Teal  
Tie and rail fastener.....C. T. Harms  
Tile-cutting machine.....K. Gnad  
Time recorder.....A. Rydquist  
Tin opener.....M. Hesselbein  
Tire.....L. Smido  
Tire, Antiskidding vehicle wheel.....M. A. and T. M. Dees  
Tire, Armored.....A. G. Wagner  
Tire, Automobile.....H. P. Fouque  
Tire for vehicle wheels, Pneumatic.....J. Steinberg  
Tire guard.....A. W. Crain  
Tire, Resilient.....W. E. Budd  
Tire, Resilient.....H. McCleary  
Tire, Spring.....E. H. Layman  
Tire, Vehicle.....J. Christy  
Tire, Wheel.....T. Midgley  
Tool, Pneumatic.....E. W. Raikes  
Towel holder and lock, Combined.....G. Reid  
Towel rack.....A. Birdsley  
Toy, Pyrotechnical.....A. Jedel  
Tracker board.....J. C. Hagey  
Transmission mechanism.....W. Weekes et al.  
Trap.....A. W. Larison  
Trolley.....J. Eberwein  
Trowel.....G. S. Bricker  
Truck, Storage battery.....B. M. Smith  
Turbine, Explosive.....J. F. Sandell  
Turbine, Steam.....B. Ljungstrom  
Tying device.....M. J. Ward  
Type-setting and line-casting machine.....H. Degener  
Type-writer carriage-return mechanism.....N. L. Anderson  
Type-writer, paper feed mechanism.....J. J. Chapin  
Type-writers, Electromagnetic device for  
operating.....G. A. Wikander  
Type-writing machine.....C. B. Corcoran  
Type-writing machine.....J. H. Barr  
Type-writing machine (2 pats.).....L. D. Broughton  
Type-writing machine.....H. Crutchley  
Type-writing machine.....A. G. F. Kurowski  
Type-writing machine.....E. C. Lawrence  
Type-writing machine.....J. M. Shelton  
Typographical machine.....C. C. Burdine  
Umbrella.....J. A. McManis  
Vacuum cleaner.....T. R. Sigafos  
Vacuum creator.....E. Hearing  
Valve.....A. J. Adams  
Valve for air-brake systems, Automatic re-  
lease.....C. W. Hurl  
Valve for explosive engines, Rotary.....R. S. Trott  
Valve for gas, Automatic check.....J. Zander  
Valve for steam and other fluids, Stop.....W. H. Greator  
Valve gear for multicylinder internal-com-  
bustion engines.....J. V. Laviolette  
Valve, Pneumatically-operated gas.....A. N. Edwards  
Valve seat.....J. Thompson  
Valve, Steam-engine throttle.....E. E. Adams  
Vaporizing and carbureting device.....M. B. B. Boyd et al.  
Varnishes, Manufacture of.....L. Meunier  
Vehicle back stop.....J. H. Adams  
Vehicle radiator support, Motor.....R. Huff  
Vehicle spring.....T. A. Hoover  
Vehicle wheel.....J. J. Van Iderstine  
Vehicle wheel.....W. G. Kruke  
Vending machine.....G. W. Miller  
Veterinary instrument.....F. F. Ogier  
Voting machine.....J. E. Ransom  
Wardrobe, Reversible.....E. H. Wilson  
Washboards, Liquid-soap feeder for.....J. Cohen  
Water cut-off.....W. H. Daniel  
Water heaters, Gas-supply regulator for.....S. Bondy  
Water meter.....J. F. Simmance et al.  
Water sterilizer, Automatic.....L. Viger  
Wattmeter.....F. Conrad  
Wave and current motor.....E. W. Fairbanks  
Webbing attachment.....A. V. Brown  
Welding machine.....J. H. Gravell  
Wheel.....T. B. Jeffery  
Whisk, Two-part.....S. G. Wilson  
Winding machine.....W. J. Barrett  
Winding machine for artificial threads.....J. Manquat  
Winding machine, Thread.....G. E. Allen  
Window.....A. H. Newpher  
Window guard.....A. H. Newpher  
Window hook.....H. Kocourek  
Window, Metallic.....C. H. Hopmann  
Wire stretcher and repairer.....J. F. Butler  
Wire-tying tool, Hand.....D. B. Williams  
Wood polish.....A. R. McMullen  
Wrench.....J. Jackson  
Bath tub.....D. Christen  
Battery support, Portable.....M. Koenig  
Bearing, Antifriction (3 pats.).....H. Steubner  
Bearing, Ball.....M. Schubert  
Bearing, Shaft.....W. M. Bradshaw  
Bearings, Making cages for antifriction.....B. Eitner  
Bed-corner lock.....H. O. Bair  
Bedstead.....J. A. Kemmler  
Beehive.....G. P. Wood  
Beet roots, Treatment of.....L. Dautrebande  
Belt guide.....T. A. Hobbs  
Bending machine.....C. N. Replogle  
Beverage extract.....W. H. Post  
Beverage-mixing apparatus.....B. E. Shattuck  
Binder, Loose-leaf.....R. C. Dunbar  
Binder, Loose-leaf.....H. Hellweg  
Blowpipe.....A. G. Le Chatelier  
Boat chock.....W. S. Rogers  
Boat-handling apparatus.....C. E. Stewart  
Boiler plant, Steam.....D. S. Jacobus  
Boiler-pressure regulator.....I. A. Backlund  
Boiler sediment separator.....A. A. Olson  
Bomb, Calorimetric.....C. Fery  
Book, Sales (2 pats.).....E. K. Bottle  
Book support, Self-holding.....I. Orochowsky  
Boot and shoe shank-piece.....J. H. Waite  
Bottle.....M. T. Bradley  
Bottle, Antirefillable.....M. Price  
Bottle closure.....L. Reider  
Bottle, Non-refillable.....A. A. Thorbahn  
Bottle, Non-refillable.....L. Stern  
Bottle, Non-refillable.....R. Dehnenbach  
Boutonnere holder.....R. B. Ferguson  
Bowling alley.....H. V. C. Holland et al.  
Bowling balls, Handle for throwing.....J. W. Hyatt  
Box and cover assembling machine, Auto-  
matic.....G. B. Allen  
Box section.....H. D. Bokop  
Bracket.....F. M. Neumann  
Bracket.....H. Jensen  
Brake beam.....J. M. Hansen  
Brake hanger.....W. G. Price  
Brake mechanism.....L. R. Killingsworth  
Brush.....G. Thomas  
Brush and polish-feeding device, Com-  
bined.....E. Johnson  
Buggies, Sliding door for storm.....S. P. Glunt  
Building block.....F. Baron  
Building-block structure, Hollow.....W. B. Davis  
Building section, Reinforced structural.....A. White  
Bung closure for barrels.....G. Stiefel  
Burglar alarm.....W. D. Hudspeth et al.  
Button, Collar.....J. E. Kalmbach  
Button, Tack-fastened.....F. E. Stanley  
Cableway (2 pats.).....R. Petersen  
Caissons and joining them.....J. W. Doty  
Calculating machine.....H. Goldman  
Calculator.....J. F. Jarrell  
Cameras, Plate-holding attachment for film.....H. S. Buller  
Car, Ballast-dumping.....A. Campbell  
Car, Box.....H. A. Christy  
Car central buffer with automatic coupling.....L. Manzano  
Car coupling.....W. E. Coffin  
Car coupling.....J. Kelso  
Car door.....H. A. Christy  
Car-door-fastening device, Freight.....E. M. Wylly  
Car door, Hopper-bottom.....A. Campbell  
Car-door-operating mechanism, Passenger  
(2 pats.).....T. J. Naulty  
Car-draft-rigging, Railway.....R. G. Taylor  
Car, Passenger.....W. S. Adams  
Car roof (2 pats.).....H. A. Christy  
Car roof, Metallic.....H. A. Christy  
Car running-gear.....J. F. Fox  
Car stake.....P. H. Hendrickson  
Car stake and bunk.....W. Houghton  
Cars and other vehicles, Life-guard for  
tram.....W. T. W. H. and P. C. Philipson  
Carbonaceous substances, Treatment of.....F. W. Burstall et al.  
Carbureters of combustion engines and  
more particularly for flying-machine en-  
gines, Device for heating the.....R. Esnault-Pelterie  
Card receptacles, Memorandum.....W. W. Dow  
Carriage sled runner, Baby.....S. W. Fransson  
Carton-feeding machine.....R. S. Clarke  
Cartridge belt for machine guns.....W. Wolf  
Cash register.....E. Sinner  
Caster attachment.....J. E. McCombs  
Centering device.....G. W. Needham  
Centrifugal machine.....J. Taylor et al.  
Chaffing screen.....D. T. Bodie  
Chair.....W. M. Bailey  
Chair attachment, Rocking.....G. F. Giasson  
Chart for cutting garments.....T. La Maida  
Chimney cap.....J. E. McCall  
Chuck.....O. Ebert  
Chuck, Drill.....E. H. Monaghan  
Chuck, Threading.....H. Dilo  
Cigar cutter and lighter, Combined.....C. Raumbach  
Cigarette box.....O. Berghorn  
Clasp.....F. A. Freeman  
Cloth-stretching and drying machine.....E. R. Meinig  
Clothes pin.....S. Lloyd  
Clutch and speed-varying pulley, Combined.....J. V. Pugh et al.  
Cock, Gage.....S. C. Staley  
Cock, Gage.....H. C. Gibbs et al.  
Coffee, tea or the like, Device for making.....B. Bodaseher  
Coin-delivery machine (2 pats.).....E. J. Brandt  
Combination lock.....W. M. Wheldon  
Combustion engine.....E. Schimanek  
Compass, Gyroscopic.....L. F. Fuehs  
Concentrating table, Pneumatic (2 pats.).....C. Q. Payne  
Concrete, Bonding (Reissue).....S. W. Flesheim  
Concrete compressed-air cistern.....W. T. Clark  
Concrete forms, Waterproof caisson for.....J. Vukovich  
Concrete reinforcing, Support and tie for.....J. B. Nevel  
Condenser or pump.....W. P. Skiffington  
Cooking-utensil cover holder.....J. R. W. Menger  
Cord adjuster.....M. A. Johnson  
Corn husker.....N. and L. Hewitt  
Corn husker.....G. L. Miller  
Corn husker.....G. A. Stevens  
Cotton-picking machines, Vacuum head for.....W. K. Dana  
Cotton press, Revolving double box.....T. S. Grimes  
Cotton-sack clamp.....J. W. Staton  
Counter-resetting tool.....C. C. Abbott  
Counting machine.....A. von Barth  
Crate.....H. D. Bokop  
Crimping tool.....E. D. Chellis  
Cultivator.....W. H. Keen et al.  
Cultivator, Dirigible.....J. R. Shaw  
Current motor.....E. T. Starry  
Curtain, Drop.....M. Shmit et al.  
Curtain pole and fixture.....J. H. Hobson et al.  
Curtain roller, Extensible.....E. E. Whitmore  
Cutter guard.....E. L. Markle  
Cutter head for matching and dressing  
lumber.....H. G. Oliver  
Cutting and folding machine.....H. M. Barber  
Cycle motor, Two-stroke.....A. Radovanovic  
Danger signal.....J. H. Sanor  
Delinier.....J. D. Mullen  
Dispensing machine.....W. R. Mittendorf  
Display rack.....T. E. Creclius  
Display stand.....M. Jersemann  
Displaying rugs, Rack for.....H. L. Gardney et al.  
Door, Grain.....D. Darwin  
Door lock, Permutation.....S. T. Wolf  
Door, Silo.....M. W. Douthett  
Dough in the manufacture of bread, Ma-  
chine for rounding up lumps of.....F. H. Van Houten, Jr.  
Dovetail joint.....T. J. Florey  
Draft gear.....S. C. J. Nash  
Draft rigging, Friction.....J. F. O'Connor  
Draw-bar attachment.....F. E. Goodhue  
Dress-suit case and like receptacle.....F. Waldschmitt, Jr.  
Drill.....C. M. Tilson  
Drill bracket.....J. E. Royce  
Drill presses, Compound table for.....L. H. Colburn  
Drilling apparatus, Rotary.....A. C. Stewart  
Drinking fountain, Bubbling.....S. C. Keith, Jr.  
Dry kiln.....H. Hunter  
Dust and cinder screen for passenger-  
coach windows.....J. Morrison  
Oye, Azo.....B. Richard  
Dynamometer, Electric.....F. Lux  
Economizer.....L. L. Gorr  
Electric circuits, Fusible cut-out for con-  
trolling.....V. Hope  
Electric conductors and preparing the same,  
Covering for.....E. T. Trotter  
Electric generators or motors, Brush holder  
for dynamo.....J. E. Grant  
Electric heating unit.....B. Falkenberg  
Electric machine, particularly applicable  
for ignition purposes in connection with  
internal-combustion engines, Dynamo.....A. H. Midgley et al.  
Electric switch.....H. R. Mitchell  
Electricity into gasses, Discharge of.....F. G. Cottrell  
Electrode holder for electric furnaces.....D. A. Lyon et al.  
Elevator brake.....W. Carman  
Embroidering machines, Needle-holding at-  
tachment for.....E. W. Keller  
Embroidering machines, Pantograph-balan-  
cing mechanism for.....W. A. Stellmacher  
Embroidery pattern.....W. T. Jefferson  
End gate, Wagon.....E. Bailey  
End-play device.....G. W. Christians  
Engine speed regulator.....C. C. Lower  
Engines, Liquid-fuel-supply arrangement of  
internal-combustion.....J. Higginson et al.  
Excavations, &c., Device for guarding street  
.....H. W. Allard  
Explosive engine.....W. C. Haman  
Explosive engine.....S. D. Shackle  
Fabrics, Apparatus for stretching.....W. T. W. H. and P. C. Philipson  
Fats and oils, Decomposing of.....B. E. Reuter  
Faucet or mixing valve, Combination.....J. W. Haller  
Feed mechanism.....S. E. Diescher  
Feed-water regulator.....T. Elliott  
Feeder, Poultry.....H. F. Leichtfuss  
Fence construction, Portable and stationary  
wire.....C. D. Bennett  
Filing cabinets, Follower-block for.....L. E. More  
Filing drawers, Follower for vertical.....W. W. Watson et al.  
Filing drawers, Suspension for.....W. W. Watson et al.  
Filed-in construction.....W. M. Torrance  
Filling cuts, Apparatus for.....J. M. Burke  
Fire extinguisher.....P. Daniel  
Fire-extinguishing syringe.....H. Merritt  
Firearm.....W. Bennett  
Firearm, Tubular magazine.....T. C. Johnson  
Flexible tube.....J. W. Gwinn et al.  
Floor construction.....C. W. Young  
Flushing tank.....C. H. Zwernmann  
Flying machine.....N. B. Converse  
Flying machine.....R. G. Dressler  
Food product, Hydrogenated fatty.....C. Ellis  
Footwear.....W. C. Shields  
Footwear and insole therefor.....F. M. Blanchard et al.  
Forge, Tire-heating.....N. L. Jones  
Forging or matricing circular pieces of  
work with a profiled periphery, Manufac-  
turing by.....J. Giriot  
Fountain comb.....W. Lewinski  
Fruit-cleaning machine.....W. Northrop  
Fruit product and making same.....C. Ellis  
Frying pan.....W. J. Reynolds  
Furnace.....J. W. Brown  
Fuse plug.....F. G. Craig, Jr.  
Games or other events, Apparatus for  
graphically portraying.....C. H. Wilson  
Garment, Adjustable.....J. P. Lynch  
Garment, Body.....C. W. T. Davies  
Garment holder.....L. Pasner  
Garter.....G. Norman  
Gas-burner cleaner.....W. A. Freeman  
Gas-fired shaft kiln, Producer.....E. Schmatolla  
Gases, Apparatus for the purification of  
electrolytic.....A. E. Knowles  
Gaseous fuel, Burning.....C. K. Harding  
Gaseous mixtures, Separation of the con-  
stituents of.....G. Claude  
Glass reflector shade (Reissue).....O. A. Mygatt  
Glazing, Greenhouse.....F. Van Assche  
Glue pot, Electrically-heated.....A. C. Hulbert  
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Goggles, Automobile.....J. U. Barr

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Acid, Manufacture of Sulphuric.....A. Teraud et al.  
Adding machine.....L. I. Darby  
Adding-machine reset guard.....R. J. Bray  
Advertising machine.....M. L. Looney  
Aerial navigation (2 pats.).....P. Peterson  
Aeroplane.....R. F. Burga  
Aeroplane, Omnibus.....G. Colucci  
Aeroplane propeller.....H. Prince  
Air, Apparatus for moistening, deodorizing,  
disinfecting, perfuming and cooling.....F. Lesser et al.  
Ammonia from coal gases and the like, Re-  
covering.....H. Rotermund  
Animal trap.....A. U. Merzhon  
Animal trap.....S. J. Hodge  
Annealing box.....F. E. Mesta  
Automatic heater.....L. A. Knowles  
Automobile accessory.....W. E. Martin  
Automobile heating apparatus.....R. A. Bailey et al.  
Bag holder.....J. F. Thresher  
Bark-removing machines, Knife-adjusting  
mechanism for.....T. W. Simpson  
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Governor, Explosive engine.....	R. B. Betcham
Governor, Internal-combustion engine.....	C. W. Richardson
Grain in bins, Appliance for distributing.....	T. Pottinger
Graphophone attachment.....	T. H. Macdonald
Grasshopper destroyer.....	H. M. Sieman
Grate for heaters.....	L. J. Mueller, Jr.
Grease from grease-bearing materials, Extracting.....	C. R. Mayo
Grinding or reducing apparatus.....	E. Barthelmess
Guano distributor.....	C. Hennessie
Gun-aiming apparatus.....	R. H. S. Bacon et al.
Gnn, Air.....	W. A. Heilprin
Hair pin.....	H. Jacobseu
Hammer roll-release mechanism, Drop.....	II. E. Derbyshire
Harvester, Beet.....	C. L. Sladinska
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Headlight controller.....	R. W. and R. T. Brace
Heat regulator, Automatic.....	A. P. Broomell
Heater.....	L. E. Church et al.
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Heel, Non-slipping rubber.....	E. G. Perkins
Hens from setting, Device for preventing.....	E. J. Fulton
Hide-working machine (2 pats.).....	R. F. Whitney
Hoisting apparatus.....	A. E. Norris
Hood, Automobilist's.....	J. Locfelholz
Hydraulic press, Steam.....	L. Iversen
Hydrocarbon furnace, Liquid.....	J. H. Becker
Incubator.....	O. A. Hensel
Index apparatus.....	C. D. Colley
Instrument, Compound.....	G. F. Hall
Internal-combustion engine.....	C. H. T. Alston et al.
Internal-combustion engine, Revolving cylinder.....	A. H. Baird et al.
Invalid support.....	E. S. Hunt
Ironing board.....	P. J. Murphy
Kitchen reminder.....	F. A. Bertram
Knife.....	H. Appleby
Knitted fabric, Fleece.....	F. J. Volz
L for wastes and overflows.....	R. Clark
Lace fastening for boots, shoes, &c.....	A. Schmitt
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Ladder, Fold-up step.....	C. Wheelwright
Lamp, Electric.....	H. A. Douglas
Lamp, Portable electric.....	F. C. Smith
Lamp positioning and removing device, Electric.....	A. O. Craig
Lamp sockets, Case for, incandescent electric.....	A., Sr. and J. Weber
Lamp, Vapor-generating.....	P. R. Marks
Lamp, Vehicle.....	C. W. Bergener
Lamps, Setting mechanism for automobile.....	J. Watzelhan
Lantern.....	C. W. Bergener
Lantern, Tubular.....	C. W. Bergener
Lantern, Tubular (3 pats.).....	C. L. Betts
Lantern, Tubular.....	R. P. Throne
Last.....	M. Rossovits
Lasting device for boot-making.....	P. Hammes
Lath fastener, Metal.....	G. A. Sagendorph
Lawn sprinkler.....	W. N. Smith
Lifting jack.....	W. W. Bell
Liquid cooler.....	O. V. Hanna
Liquid-dissolving apparatus.....	J. McPherson, Jr.
Litter carriers, Pole-track extension for.....	R. B. Dillon
Lock.....	G. E. Gaunt
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Loom temple.....	J. Northrop
Looms, Weft-fork actuator for.....	O. A. Sawyer
Loss-preventing device.....	W. M. Bird
Lubricator.....	H. W. A. Wellens
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Machinery, Anchoring means for movable.....	C. S. Denney
Mail-bag-catching apparatus.....	L. W. and G. R. Troxell
Mail indicator, Spelling.....	C. H. Luther
Mailing package.....	G. B. Streit
Malt, Manufacture of.....	R. Wahl
Map for automobiles, Road.....	G. A. Deardorff
Marker, Automatic.....	C. C. Cox
Measuring device, Foot.....	F. L. Kerr
Measuring flow of liquids in closed conduits, Apparatus for.....	F. Simpson
Medical-treatment apparatus.....	A. E. Gareau
Mercury, Producing a new effective preparation of.....	E. Scheitlin
Metal-cutting tool.....	F. E. Bocorselski
Mold-making machine.....	H. R. Atwater
Molding apparatus.....	D. W. Mesick
Molding machine, Stripping plate.....	H. E. Kimball
Mortising machine.....	A. Larson et al.
Motor cleaner.....	A. F. Wagner
Motor-starting device, Explosive.....	H. Hess
Motors, Primer for internal-combustion.....	G. W. Brown
Motors, Producing working fluids for.....	O. Kraus
Mower, Close-cutting lawn.....	A. H. Davidson
Music-leaf turner.....	R. B. White
Music-leaf turner.....	I. Scott
Musical instrument.....	F. W. Wood et al.
Musical instruments, Sostenuto device for.....	M. L. Severy et al.
Musical instruments, Tracker bar for automatic.....	J. J. Klein
Nail set, Square-head.....	C. F. Mueller
Necktie.....	H. N. Leinkram
Nest, Trap.....	F. J. Schisler
Nest, Trap.....	J. W. Thompson
Non-skidding device for wheels.....	W. E. Gerth
Nut and fish-plate, Combined lock.....	W. E. Koehler
Nut lock.....	C. H. Klee
Nut lock.....	W. R. Morse
Oil and stock food from cotton-seed, Obtaining.....	T. H. Covey
Oil, turpentine oil, &c. Refining raw unrefined pine.....	J. Schindelmeyer
Optical instrument.....	H. L. De Zeng
Orchard heater.....	J. L. Hamilton
Overhead switch and automatic trolley stop.....	W. Rothe
Package-filling machine.....	T. B. Lundin
Package-securing device.....	R. Weyrich
Packing.....	J. Hahn
Packing, Metallic.....	V. E. and R. G. Nelson
Page or stub clamp.....	J. P. Knowles
Panic bolt.....	J. M. Marty
Paper, Device for shipping rolls of.....	J. C. Martin
Paper-folding-machine trimming mechanism.....	C. O. L. Cardell
Paper guide.....	A. U. Davis
Pen, Fountain.....	F. W. Howard
Pencil.....	A. P. Jacob
Pencil.....	D. F. Roeder
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Photographic recording apparatus, Illuminating device for.....	F. Simpson et al.
Piano-action rail.....	W. B. Allen
Piano player having self-setting device, Automatic.....	K. O. Carlson
Piano players, &c., Pneumatic action for.....	G. P. Brand
Piano-playing mechanism and the like.....	C. W. Atkinson
Pianos, Leg-operated tempo-lever attachment for player.....	F. B. Beinkamp
Pianos, Safety device for player.....	E. R. Philblade
Pianos, Transposing device for.....	W. Ibach
Picture rewinding mechanisms, Electric signaling device for moving.....	C. V. Foote
Pillow.....	M. E. McComb
Pipes, Making armored.....	H. Kroger
Piston.....	H. G. King
Plastic compound and making it.....	F. G. Wichmann
Plastic material and preparing it.....	F. G. Wichmann
Plate and sheet furnace.....	H. W. Burnett
Plow.....	S. A. Stewart
Plow-carrier and its operating mechanism, Pivoted.....	S. L. Sladinska
Plow, Motor.....	W. N. Robison
Pneumatic-despatch-tube apparatus.....	B. C. Batcheller
Pocket straps, Manufacturing.....	A. G. Sandman
Potato sorter.....	B. Halterman
Power device.....	M. C. White et al.
Preservation of alimentary substances, Air-circulating apparatus for the.....	R. Payson
Pressure expansion safety venting device.....	S. S. Weil
Printing mechanism, Time (Reissue).....	H. Abbott
Printing press.....	G. A. Kitz
Propelling or power-generating mechanism.....	J. C. Caldwell
Pulley, Expansion.....	F. J. and V. E. Vincent
Pulp board.....	G. J. Manson
Pulp, Production and treatment of mechanical wood.....	A. N. Andersen
Pump.....	W. L. Harrison
Pump, Air.....	J. H. Champ
Pump and windmill connection.....	J. S. Slover
Pump, Automatic-balance double-suction.....	A. C. Paulsmeier
Pump, Automatically-controlled.....	P. F. Goehring
Pump-rod coupling.....	T. S. Kemp
Pump-rod coupling.....	J. B. Massey
Pump, Rotary pressure or vacuum.....	G. I. Leonard
Pump suction pipes, Valve mechanism for.....	T. Elliott
Pump, Tire.....	T. K. Begg et al.
Pump, turbine and compressor, Centrifugal.....	E. S. G. Rees
Pump, Vacuum cleaner.....	H. H. Harrold
Punching and shearing machine.....	L. D. Jannell
Radiator, Water-cooling.....	W. J. Kells
Rail foot guard.....	T. S. Partin
Rail joint.....	J. H. Cooke
Rail joint.....	L. E. McManus
Rail support or chair, Third.....	J. S. Fox
Railway crane, Portable.....	W. Schrader
Railway cross tie.....	R. H. Pinkham
Railway signal fusee, Time-burning.....	I. Niditch
Railway spike.....	L. Rathmacher
Railway-tie plate.....	J. Callan
Railway-tie structure (2 pats.).....	O. P. Megahan
Railway-train-control apparatus.....	J. T. Thompson
Railway-train signal or control mechanism.....	J. T. Thompson
Railway trains, Safety device for.....	S. Kimelman
Range-finder carriage.....	V. J. Odhner
Razor, Rotary safety.....	G. N. Moore
Razor, Safety.....	F. Kiko
Recorder.....	L. G. Gadd
Recording instrument.....	S. T. Bole
Register.....	A. Shaw
Register.....	H. G. Harper
Relay, Resonating.....	H. von Kramer et al.
Resilient wheel.....	G. E. Sprague
Resistance inclosure.....	C. A. Rhine et al.
Rifle, Bolt-action.....	G. Norman
Rim.....	J. S. Johnston
Rim construction.....	J. C. Cole
Rim, Remountable.....	W. C. Baer
Ring-forming tool.....	J. Merritt
Roadbed and construction thereof.....	C. Ellis
Road planer.....	J. W. Mosher
Rolling mill for rolling tubes.....	M. Koch
Rontgen rays, Means for producing.....	A. Wasmus
Roofing, Lap joint for corrugated.....	H. L. Leilich
Rotary engine.....	G. W. Snead
Rotary engine.....	N. J. Wold
Ruling machine, Paper.....	A. L. Barber
Ruling machine penholder.....	A. L. Barber
Sad iron.....	A. L. Stone
Sad iron.....	C. J. Johnson
Safety hook.....	W. L. Burnham
Safety pin.....	A. W. Hutchins
Sander.....	W. B. Rogers
Sanitary protector.....	G. Pfeil
Sash lock.....	W. S. Adams et al.
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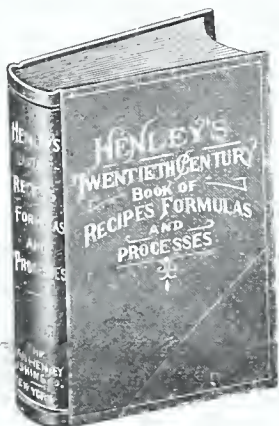
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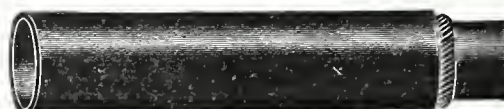
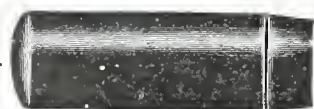
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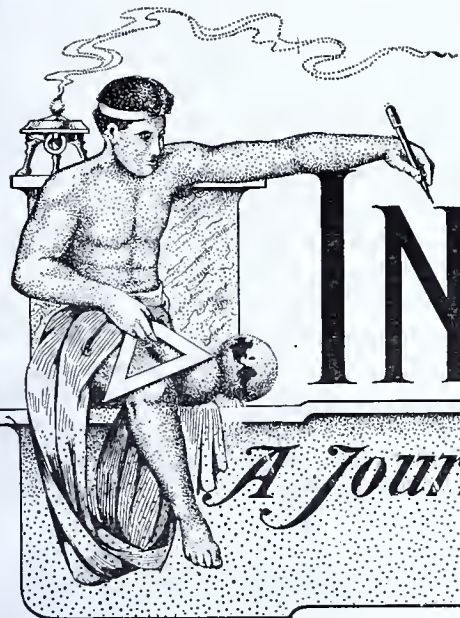
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## SOIL STERILIZATION.

By FRANK C. PERKINS.

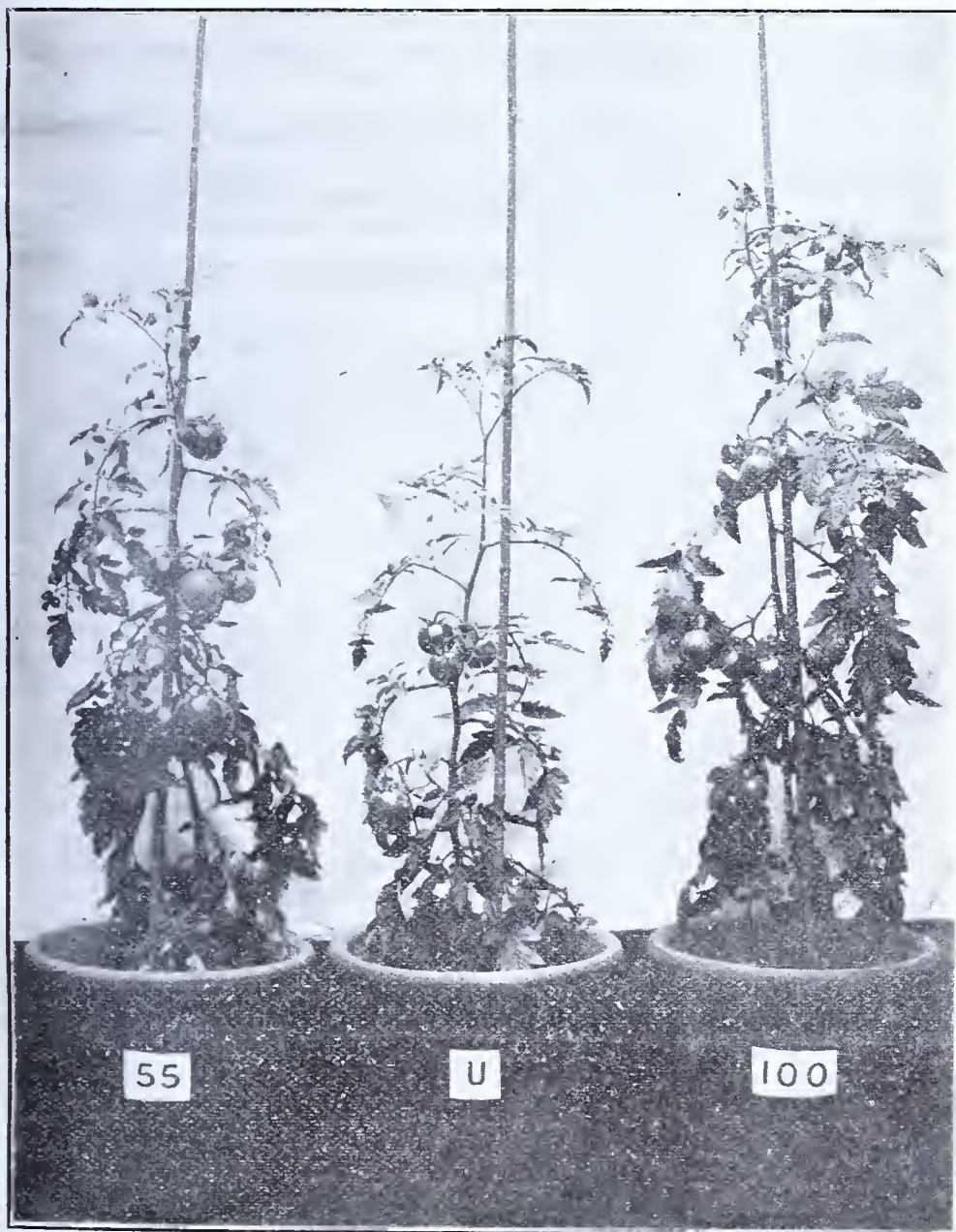


FIG. 1.—TOMATOES IN UNTREATED AND TREATED SOILS.

SOME most interesting experiments in soil sterilization have been made at the Lawes Agricultural Laboratory of the Rothamsted Experimental Station in Harpenden, England, under the supervision of Director E. J. Russel,

D. Sc. to whom the writer is indebted for the accompanying data and photographs. The results of these experiments in soil sterilization are indicated in the illustrations. The photograph Fig. 1 shows tomatoes on plants grown

in tomato-sick and heated soil, those at U being grown on untreated soil and the plant 55 being grown in soil heated to 55°C, while 100 shows plant grown in soil heated to steam heat, the relative crops of tomatoes on same being noted in photograph Fig. 2.

The vines shown in Fig. 3 (see page two) were grown in vine sick soil, those at U in untreated soil, those at 210 F grown in the same soil heated by steam, while the plant at F was grown in the same soil treated with formaldehyde, one pound per ton of soil.

It is of interest to note that photograph Fig. 4 illustrates the partial sterilization of soil by means of heavy doses of lime, and the result obtained. In the soil in jar labeled "C. R." there was no lime, in "14," seventeen small doses were used, while in "20" and "23" large doses were tried and the increased growth of the plants is clearly indicated.

systematic field experiments were begun, and the services of Joseph Henry Gilbert were obtained as director, thus starting the long association which only terminated with the death of Lawes in 1900, followed by that of Gilbert in 1911.

It is stated that the Rothamsted Experimental Station has never been connected with any external organization, but has been maintained entirely at the cost of the late Sir John Lawes. In 1889 he constituted a Trust for the continuance of the investigations, setting apart for that purpose the laboratory (which had been built by public subscriptions, and presented to him in 1855), certain areas of land on which the experimental plots were situated and £100,000 (\$500,000). By the provision of the Trust deed the management is entrusted to a committee nominated by the Royal Society, the local Agricultural Society, the

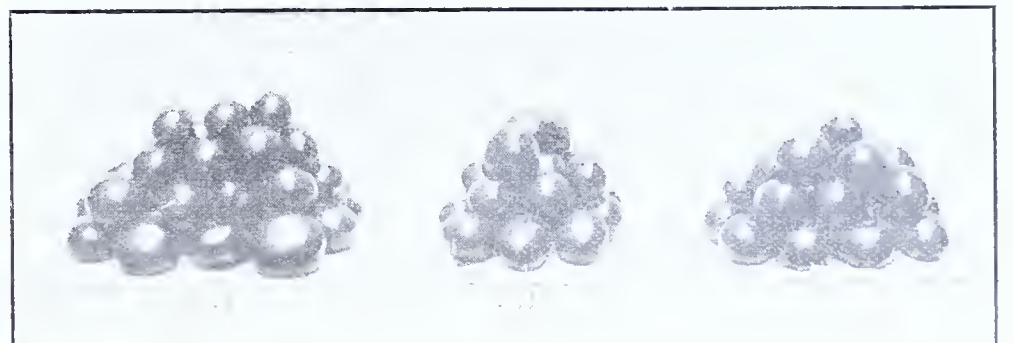


FIG. 2.—YIELD OF TOMATOES UNDER TREATMENT.

It may be of interest to consider further the work done at this English agricultural laboratory. John Bennet Lawes was the founder of the Rothamsted Experimental Station. He began experiments with various manurial substances, first with plants in pots and then in the field, soon after entering into possession of the estate at Rothamsted in 1834. In 1843 more

Chemical and Linnean Societies, and the owner of Rothamsted.

During the year 1911 a scheme was published by the Board of Agriculture for the encouragement of agricultural research with funds provided by the Development Commission. This scheme established or assisted a certain number of institutes for fundamental research, each dealing with one great



branch of the subject. The Rothamsted Experimental Station is recognized as the institute for dealing with soil and plant nutrition problems.



FIG. 3. — VINES IN UNTREATED AND TREATED SOILS.

In accordance with this scheme a grant of \$12,000 was made for the year 1912, and an annual grant of this amount will be made to the station in future. Certain scholarships have also been instituted to provide training in research work for men who have qualified in pure science and are desirous of taking up an agricultural career. The holders of three of these scholarships are now doing work at Rothamsted. Investigators from other institutions spend a certain amount of

of land have been taken on a seventy-seven years' lease, which, together with the trust land, gives a farm capable of being worked to great advantage in the experiments. The new laboratories will shortly be ready for occupation.

The field experiments which began in 1843 have been continued on some of the plots without break or alteration up to the present time. It is considered important to continue the experimental plots at Rothamsted without any change, as nowhere else in the world do such data exist for studying the effect of season and manuring upon the yield and quality of the crop, and for watching the progressive changes which are going on in the soil. Year by year these plots are found to throw light upon new problems in agricultural science: in all directions they continue to provide material for investigations upon points which were not contemplated in the original design of the experiments, so that it is impossible to foresee when and how they may become useful and provide indispensable material for the solution of problems undreamt of at the present time.

There are 210 plots, and every year 243 samples have to be taken with proper precautions and put into storage for future reference. In addition there are made 486 determinations of dry matter, 243 of ash, 170 of nitrogen, 50 of phosphoric acid and 24 of potash, also 180 determinations of nitrates, etc., in rain and drainage waters, and 17 botanical analyses of hay. This does not include examinations of soils, the complete grass separations, and other extensive series of tests which are made at longer intervals. All the above examinations, however, are part of the necessary



PARTIAL STERILIZATION OF SOIL WITH LIME.

time in the laboratories, studying analytical methods or ways of getting over difficulties that have arisen in the course of their work. These developments have necessitated a considerable extension of the laboratory and of the farm. For this purpose a grant was promised by the Board of Agriculture out of the development fund, on condition that an equal sum should be provided by the committee, and this amount has been raised by the society for extending the Rothamsted experiments. Two hundred and thirty acres

routine which must be completed before any new investigations can be undertaken.

The object of the Rothamsted experiments is to ascertain "how the plant grows" and only indirectly to find the best paying method of manuring; hence neither the nature nor the quantities of material applied are to be taken as indicating the manures which should be used in practice.

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#### Oil as Fuel for Ships.

There are now seen from time to time, in the ports of New York, Philadelphia or Baltimore, vessels of a new type, which at once attract the eye by reason of their unusual outlines. They have no funnels, or other visible evidence of propelling power, for they use oil instead of steam. A determined effort is being made to depose steam from the position it has held since the days of Fulton, as motive power for ships. Electricity and gasoline are widely used for launches, but for larger boats that are destined to make long voyages, oil seems to be the best available fuel. The first boat of this class to cross the ocean belonged to the Hamburg American Line. She is 384 feet long, 58 feet in beam, and has a displacement of 10,550 tons. There are two motors, each developing 1,250 horsepower at 140 revolutions per minute, which is sufficient to yield a speed of 14 miles an hour. This can be maintained for 24 hours by the use of 12 tons of crude oil fuel. The boat can carry 1,000 tons in her double bottom, which would be enough to take her around the world.

A remarkable record run was recently made by an oil-boat, which traveled from Singapore to Rotterdam, or nearly 12,000 miles, in 52 days. The engines were not stopped once on the journey, which means that this was one of the longest runs ever made by a machine-propelled boat, without pausing for repairs or some such purpose. Oil is gradually supplanting coal on all British ships of war. The ocean-going class of destroyers all burn oil in their furnaces and carry no coal. The weight thus saved enables them to develop high speed. The advantages of the use of oil are many: The first is the elimination of the waste in coal. Coal, when it is burnt, leaves a certain amount of ash and clinker, which represent useless weight, and which has from time to time to be removed from the stokehold. With oil there is no such waste material that has to be removed.

A second point is the reduction of labor with oil fuel. Fewer stokers are needed, for all that is required is to turn on the valve which sprays the oil on the furnaces.

Thirdly, oil can be pumped from ship to ship, and can thus be easily transferred at sea in any but rough weather, whereas coaling at sea is extremely difficult and dangerous in anything but a perfect calm. The one disadvantage of oil is that it does not offer any resistance to a projectile. Coal, when the bunkers are full, will protect the ship's vitals, and this oil fuel can never do.

The way in which oil is burnt is the following: The oil, which is a heavy treacly looking stuff, is sprayed with a current of air through burners so placed that jets of flame from them impinge upon fire bricks in the furnaces of the boilers.

All that the stoker has to do is to manipulate his feed and burner valves, and with perfect steadiness and ease.

Oil fuel alone is burnt in all the new torpedo boats which have been recent-

ly built for the British navy. In these vessels it gives excellent results.

In larger ships it has been slowly introduced during the past eight years, and all modern British battle ships and armor cruisers carry a supply of oil, in addition to coal.

The oil is usually conveyed in the double bottoms of the ships, though there is some risk from fire should a ship run aground and have her double bottoms pierced, as in that case the oil might be carried up to the furnaces in the boiler rooms, which happened in the German battleship Friedrich III.

If it is desired suddenly to increase speed on one of the battleships or cruisers, the oil fuel is brought into play and sprayed on the furnaces through special burners. In recent maneuvers the battleships at once drew away from their pursuers when they turned on their oil fuel.

Tanks for the storage of oil are now being installed at all important British naval bases, and there is every indication that in the near future oil will be more and more used, and will gradually supplant coal as the main fuel for warships.

#### Telephone Time Saver.

Everyone has been annoyed by having to wait at the phone until the connection is established. This has been obviated by a device described in *Chambers' Journal*. There is a sound-magnifying trumpet of flat shape, behind which is a small attachment intended to support the telephone receiver. When it becomes necessary to hold the line, either when calling up or replying, instead of the person standing with the receiver glued to his ear, he places the receiver upon the time saver, bringing the ear piece into position with the sound magnifier. He is then at liberty to resume his duties until the person required at the other end attends to the instrument. The speed transmitted is then magnified by the time saver so as to be perfectly audible at a distance. The receiver may then either be withdrawn and held to the ear in the usual way or left in connection with the magnifier, hearing being quite as simple and easy as under ordinary conditions. Another advantage of the invention is that it leaves the user's two hands free to carry out any other requisite task, such as making notes, writing down messages, turning over papers, and so on.

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Signed, E. G. SIGGERS, Owner.

Sworn to and subscribed before me this 7th day of April 1913.

Signed, JOHN H. SIGGERS

(SEAL)

Notary Public.

My commission expires November 16, 1916.



### Shooting at Moving Pictures.

Before another twelve months have gone by, says the *Technical World*, the hunter will have an opportunity to kill game in his home town by going to a shooting gallery and firing at lions, bears, ducks and every kind of wild creature as shown in the moving pictures on the screen. Furthermore, he need fear no game warden and can revel in an open season, extending the year round. He need not stop at wild animals, for on the same film he will find armies of men, racing automobiles, and even men and women walking along quite unconscious of the fact that they are going to be shot at. This provision of living targets for the devotees of the rifle marks the latest departure of the cinematograph.

Every time a gun is fired, the picture stops for a second or so, and the passage of the bullet through it is shown by a hole of light. A mechanism for recording the hits and keeping the scores of the various rifles, consists of a series of lamps in connection with the guns. The circuit is closed by the operation of the hammer of the rifle. The disappearance of the shot holes in the screen is caused by a kind of tripple screen. Behind the forward one on which the pictures are thrown, are two others, consisting of white paper, one moving a fraction vertically and the other a fraction horizontally after each shot. The shot goes through all three screens, but when the two moving ones alter positions they, of course, cover up any hole made.

The obstacle that had to be overcome in making this system of moving targets practicable, was the fact that while the animals appear to move, they are in reality merely seen in different momentarily fixed positions. Thus if the rifle were fired while the animal was apparently at a point midway between the two actual positions, a miss would be recorded. By an ingenious arrangement, the illusion is overcome through making the entire screen sensitive. A steel plate is employed as a screen, and at its back is a wooden gridiron supporting small iron balls hung upon chains. These are so arranged that a bullet striking the screen will force a ball away from the plate, causing the chain to cross two rods, thus closing a break in an electric circuit.

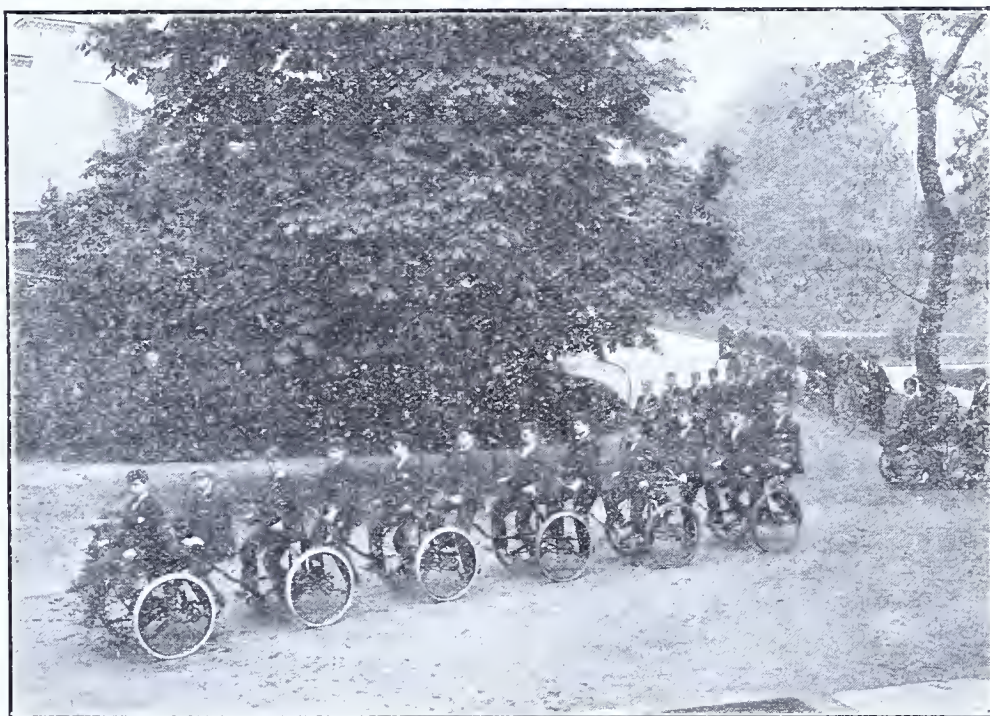
It was no easy task to secure good living targets in motion. Shooting at the animals is good sport, but more excitement is in store for the man who can put a hole through the water tank on an automobile that wizzes by at the rate of 60 miles an hour. He is a pretty good shot if he can hit a bird in the air. Of course it is fairly easy to hit the animal in some place, but the true sportsman tries to find a vital spot. Therein lies the excitement of the chase.

To keep themselves posted in the progress of the arts in which they are interested, inventors and manufacturers should subscribe for the *INVENTIVE AGE*, which publishes a list of all patents issued each month. The low subscription price and the character of the publication entitle it to the support of all the inventors of the country.

### ENGLISH MULTICYCLES FOR THE BLIND.

THE first multicycle used by the pupils of the Royal Normal College for the blind, was a Rudge Sociable cycle. When the double Sociable was developed two of these machines were obtained, and with two persons with sight to steer, the blind pupils often went on short trips. This Sociable was exchanged for a tandem, and two other tandems are joined for a four-in-hand.

As it was important to have a machine on which one person with sight could steer for more than three blind riders, the multicycle manufacturers were asked to construct a machine to carry eight, and a number of experiments in couplings were tried. Members of the staff of the college for the blind made several visits to Coventry to test the experimental machines. Finally a satisfactory one was built and given to the college.



The institution was soon after provided with two six-in-hands, a four and a three, so that a party of twenty-seven blind people could be taken out for an afternoon run. The Singer military multicycle was then developed, and a twelve-in-hand was built, which is still in use. It has six pairs of wheels with two riders for each axle, and the six parts are constructed with swivel and knuckle joints.

The latest multicycles, as seen in the photograph, are very sensitive to the steering done by the second rider. Each will turn in its own length and can be divided into two sizes, or three fours. Its length is 28 feet, and it is geared to 51. With this multicycle, runs have been made to Derby, Birmingham, Brighton and other towns. Until the motor traffic monopolized the roads, the machine was in constant use by the blind boys and girls, and there was no outing they enjoyed more than a run on the Brighton Road, stopping for tea at a little inn.

There is a track of three laps to the mile, in the grounds of this asylum, where the pupils practice.

For recreation, at the Royal Normal College and at the Academy of Music for the blind at Upper Norwood,

London, a number of these multicycles are used, as shown in the accompanying photograph. A team from this institution for the blind rode from London to Brighton and back, a distance of 100 miles, in 10 hours and 45 minutes running time. The riders for this trip were chosen from sixty candidates. One of these multicycles, built by the Singer Cycle Co., Ltd., was equipped with tires presented by the Dunlop Company. The length of the machine is 28 feet and the gear is 51. The second person steers this machine, and the other simply propels the combination vehicle.

Dr. F. J. Campbell began his work for the blind in three small houses on Anerley Hill, with two pupils. Today there are eleven buildings, a gymnasium, a skating rink, a cycle track, and a swimming bath with sixteen acres of

Among efforts made elsewhere to lend variety to the lives of the blind is a machine that may be used by those who are not only afflicted in this way, but are deaf as well. It is called the Braille talker, and is a small, polished piece of wood on which, at either end, are seven wooden keyboard stops. The two persons wishing to talk sit down and place their fingers on the stops. Six of the stops on each side using the Braille alphabet (which consists of a system of points arranged in different groupings) are used for the formation of words. Different combinations of stops pressed down throw into position the points, which the blind read by feeling them with their fingers. Six points, singly or in groups, are used to form all the letters. The seventh stop on each side of the board is the spacer, which is pressed once to signify the end of a word and twice to show that the "speech" is finished.

### Narcotic Bullet.

The painless blowing off of one's arms during war time; the humane shooting of wild game on hunting expeditions, and the simple operation of firing the specially prepared bullet into the heel of a fleeing burglar, to have him run a few yards further and then go off into peaceful slumber, is what a Pittsburg scientist hopes for a medically treated bullet with which he is experimenting. He hopes to have the United States Government adopt the bullet for army use. He is trying to get the Society for the Prevention of Cruelty to Animals to recognize its merits, and then induce sportsmen to adopt it. He later will give the Police Chiefs of the country a few boxes to experiment with.

The new compound, says the *Technical World Magazine*, is called "the narcotic bullet." Experiments with it are being conducted by a committee of army officers, police officials and sportsmen. It is considered alike humane in warfare and deadly in hunting big game. In self-defense it provides the poor marksman with all the advantages of an unerring aim.

In his sleep-producing missile the inventor uses a minute particle of morphia. The drug is carried in tiny wells in the steel jacket of the regulation army bullet. It is said that it in no wise interferes with the effectiveness of the missile. The slight indentation in the steel jacket causes no splintering when it comes in contact with the bone. The wound of the narcotic bullet, according to this theory, does not differ from that caused by the regulation bullets now used in the approved army cartridges. No deleterious effects will follow the unique administration of the drug.

The soldier, receiving a slight flesh wound from the new bullet, fights no more that day: he calmly stretches himself on the ground and goes to sleep. The man receiving a serious wound suffers no agony, as the narcotic from the bullet is absorbed by his system and he is insensible to pain before he reaches the hospital. The man whose wound is mortal sleeps away his last hours, thus doing away with most of the battle-field horror. The fleeing burglar is shot in the arm, runs forward a short distance, stretches himself on the sidewalk, and all the policeman has to do is summon an ambulance and haul him away. The big game hunters will feel no fear of a counterstroke from a wounded tiger, lion or grizzly bear. Although the bullet may make but a slight wound, the game is as good as bagged, once it is struck.

ground and 156 students in residence.

The course of instruction includes the following: literature, history, science, mathematics, typewriting, French, Latin, and Greek. It is of interest to note that the training college department, under the board of education, prepares students for government examinations, also to be music teachers, pianists, organists, choir-masters and vocalists.

Great interest is taken in physical education, gymnastics of the English, Swedish, German and American methods being taken up with drills, swimming, ice and roller skating, rowing, cycling and other out door sports.

It is stated that 89 per cent of the pupils who have completed their course of training at the college are now entirely self-supporting. The whole conception of the institute is to regard the blind not as a burden but as an integral element of the community; a class under deprivation and disadvantage indeed, and therefore having some special claim for sympathy and aid; but a class which, having received that aid, is capable of claiming its place in the education and work of the nation.



# CLEVER NEW PATENTS.

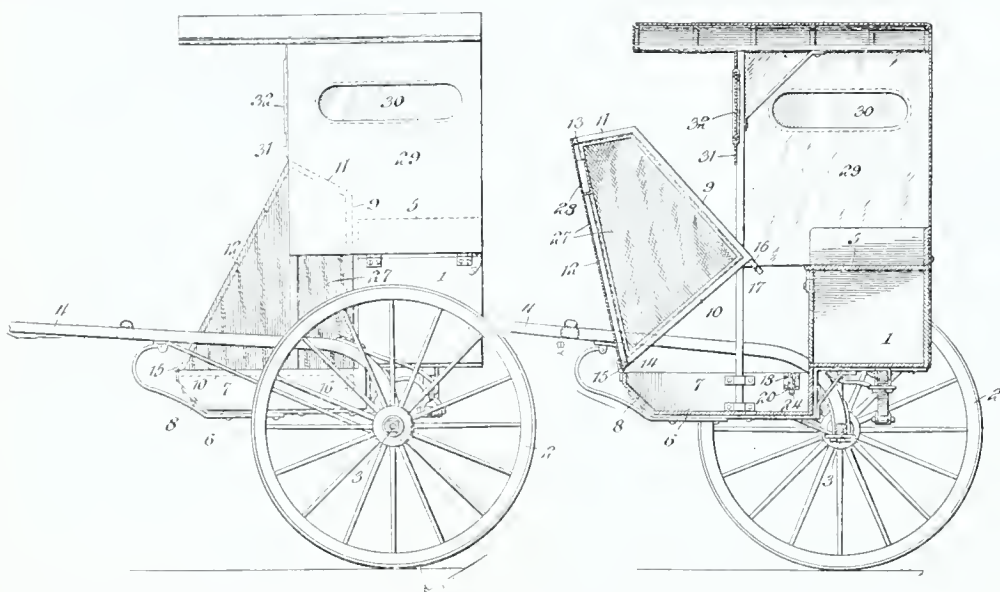
RURAL FREE DELIVERY VEHICLE—PENCIL—ICE CREEPER ATTACHMENT FOR HORSESHOES.

## Rural Free Delivery Vehicle.

The vehicle shown in the accompanying illustration is particularly designed to be employed by postmen in the collection and delivery of mail on rural free delivery routes, in which vehicles it is particularly desirable to protect the occupant as well as the contents of the vehicle from the weather.

In the accompanying cut the two figures represent, respectively, a side view and a section of the vehicle, the view to the left illustrating the apron in its closed position, while the right hand view illustrates the apron released by its latch and thrown forward to allow the occupant of the vehicle to alight.

The vehicle is of the general construction shown in a prior patent issued to the patentee, the present improvement residing in the construction and mounting of the apron. The object of the invention is to equip the vehicle with an apron at the front thereof, which is so constructed as to always maintain its shape, but which may be moved in a direction to permit the occupant of the vehicle to alight therefrom, or to enter the vehicle without interference from the apron.



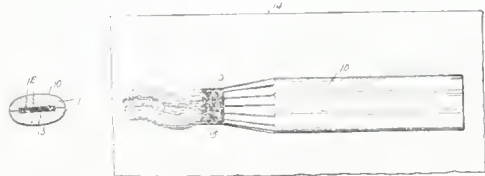
The apron structure comprises a skeleton frame filled in with proper waterproof fabric. While made up of a number of parts, it is practically a one-piece rigid frame in the sense that it is non-collapsible, the several parts maintaining the same relation one to the other at all times during the movement of the frame. The front of the frame is hinged at its bottom to the upper edge of the bottom of the vehicle body at the front, and is provided at its rear end at each side with an extension 16 formed with a notch 17 adapted to engage with a latch lever 20 secured to the sides of the bottom of the vehicle. The latch levers 20 are arranged in such relation to the seat of the vehicle that they are adapted to be engaged by the foot of the occupant, so that by pressing against the latches the apron may be released and thrown to the position shown in the right hand figure of the illustration.

Above the apron, the front of the vehicle is provided with a drop 31 having window 32, said drop being so proportioned that it meets with the upper portion of the apron, so that when the apron is in the position shown in the left hand figure, there is provided a complete protective wall for the front of the vehicle, and since the apron is hinged to the upper edge of the foot receiving portion of the vehicle, rain or snow cannot enter the vehicle from the sides, and complete protection is afforded to the occupant as well as any mail matter contained within the vehicle.

The invention has been patented by Gustav F. Schulze, of Vandalia, Mo.

## Pencil.

Among recently patented novelties is a pencil for writing ornamental signs, with a core so formed that a ribbon-like appearance is given the marks in writing, so that an erasure



or interpolation may be readily detected. The inventor is John A. Walls, of Mount Washington, Md., and the

pencil is made of two sections secured together, the cross section of the pencil being oval, as shown in the small cut to the left. The co-engaged faces of the sections are provided with registering recesses receiving the core, which is non-homogeneous in cross section, as regards its marking properties, so as to produce a mark which looks like a wide streak or ribbon of gradually changing complex striated or band appearance. This is illustrated in the large cut. The core embodies a number of granules or striæ, which may be of various colors. It may be composed of the same substance in

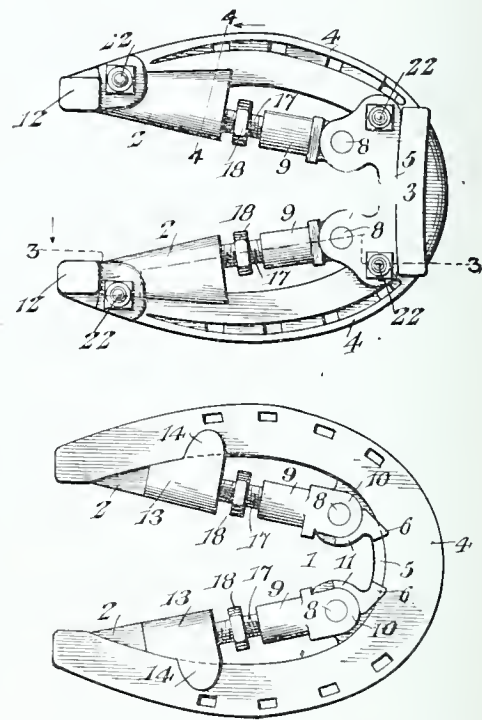
granules or striæ of different marking properties, or of different substances, so as to effect different marks in the way of stains, smudges, abrasions of the surface, or reaction of chemicals used, according to the properties of the various granules composing the core. It will thus appear that the pencil core will readily serve to identify a mark by its striæ, and any erasure or change will be detected at once.

## Ice Creeper Attachment for Horseshoes.

One of the most distressing incidents of city traffic is the slipping of horses on icy streets, often resulting in injury to the animal. A device to be attached to horseshoes, intended to make the latter less liable to slip, has been patented by Samuel P. Smith, of St. Paris, Ohio. It can be easily applied to any shoe without the aid of a blacksmith, and will not interfere with the frog of the hoof. As shown in the cuts herewith, it consists of a toe piece 1 which fits against the toe calk

horseshoe, extends across the front thereof and has an upwardly extending flange 5 curved to conform to the shape of the shoe and having projections which engage the upper face of the same, thus securely interlocking the toe piece with the front portion of the shoe. It likewise has ears 7 with openings to receive pivots 8 for pivoting the tubular front sections 9 to the side portions of the toe piece. The tubular sections, 9, have ears which overlap the ears 7 and have openings through which the pivots 8 pass. These pivots have countersunk heads flush with the outer faces of both ears. The flange 5 has curved extensions formed integral with the ears 7 and adapted to act as braces. The heel pieces 13 consist of blocks arranged against the rear portions of the sides of the horseshoe and fitted against the heel calks 12. They have integral side portions and longitudinal flanges to fit against the sides of the shoe, and have lugs 14 project-

ing from the sides in spaced relation with the longitudinal flanges and fitting against the upper face of the shoe. Thus the heel members are interlocked with the side portions. The heel pieces 13 each have a longitudinal bore, and the tubular member 9 and the heel member are screw threaded internally to receive the right and left hand portions of an adjusting screw 17. This screw is provided with a polygonal wrench-receiving portion 18 and is adapted to be rotated to force the toe and heel members apart in tight engagement with the front part of the horseshoe and the heel calks, and to draw the same together, so that they may be engaged with and disengaged



from the horseshoe. This attachment is adapted to fit shoes of various sizes. The pivotal connection between the tubular members of the adjusting devices and the toe member permits the heel parts to be swung into and out of engagement. The spaced heel members and the longitudinal adjusting devices provide a central space to avoid the frog. Threaded openings on the heel and toe members receive calks 22 which may be of any desired construction to prevent a horse from slipping. The invention can be applied to any horseshoe without any special preparation of the latter and will not spread the shoe and affect the fastening means thereof.

# PATENTS

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## LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

SCHMERTZ WIRE GLASS CO. et al. v. WESTERN GLASS CO.

(District Court, N. D. Illinois, E. D. March 17, 1913. 203 F. R. p. 1006.)

### 1. PATENTS—INFRINGEMENT—PROFITS RECOVERABLE.

Where there were devices or processes in the prior art open to the use of an infringer, the measure of profits recoverable by the patentee for the infringement is the difference between the profits made by the use of the patented device or process and that which would have been realized or lost on any other open to defendant's use.

### 2. PATENTS—INFRINGEMENT—ACCOUNTING FOR PROFITS.

Evidence held sufficient to entitle a complainant to recover substantial profits from an infringer of the Schmertz patent, No. 12,443 (original No. 791,216), for an apparatus and process for manufacturing wire glass.

### 3. PATENTS—INFRINGEMENT—ACCOUNTING FOR PROFITS.

Defendant, which was a large manufacturer, was using a machine and process in the manufacture of wire glass which infringed complainants' patent, and a suit was brought for the infringement, in which a preliminary injunction was denied. Defendant was complainants' only competitor in the business, and, in order to control the market, complainants entered into a contract by which they took and paid for all of defendant's product during the term of one year pending the suit; the contract providing that it should be without prejudice to the legal claims of either party. Complainants were successful in the suit. Held, that they could not recover profits made by defendant during the contract year when it was in effect a licensee, but that the reservation of rights in the contract must be construed to apply only to such rights as they stood when the contract was made.

WEBER ELECTRIC CO. v. NATIONAL GAS & ELECTRIC FIXTURE COMPANY.

(Two cases).

(District Court, S. D. New York, March 24, 1913. 204 F. R. p. 79.)

### 1. PATENTS—INVENTION—WHAT CONSTITUTES.

When a desired result is sought by those working in the art and skilled therein, but not obtained for lack of efficient means, which such persons are unable to devise, and another, by some seemingly simple change or adaptation of an old means or element of a combination, accomplishes the desired result or a better one, and his device proves commercially successful and largely displaces all others, it discloses patentable invention.

### 2. PATENTS—VALIDITY AND INFRINGEMENT—INCANDESCENT LAMP SOCKETS.

The Weber patents, No. 743,206 and No. 916,812, each for an improvement in incandescent electric lamp sockets, construed, and held not anticipated, valid, and infringed.

CONLEY v. THOMAS.

(District Court, W. D. Pennsylvania, March 7, 1913. 204 F. R. p. 93.)

### 1. PATENTS—SUIT FOR INFRINGEMENT—PREVIOUS ADJUDICATION OF VALIDITY.

Where a patent has been sustained by an appellate court, its validity must be assumed by a subordinate court in a subsequent suit, unless the record contains new evidence which presumably would have produced a different decision if it had been before the court in the prior suit.

### 2. PATENTS—VALIDITY AND INFRINGEMENT—GUIDE FOR PUNCHING PRESSES.

The Conley & Conley patent, No. 701,544, for a guide for punching presses, held not anticipated and valid, but not infringed by the machine of the Thomas patent, No. 908,818.

PATENTS SELLING & EXPORTING CO., AKTIESELSKAB, v. DUNN.

(District Court, S. D. New York, Jan. 20, 1913. 204 F. R. p. 99.)  
(Supplemental Opinion.)

### 1. PATENTS—VALIDITY AND INFRINGEMENT—DUST-EXTRACTING MACHINE.

The Schoidt patent, No. 854,670, for a dust-extracting machine, held not anticipated, valid, and infringed as to claims 1, 2, 3, 5, and 10.

### 2. PATENTS—ANTICIPATION—STRUCTURES IN DIFFERENT ART.

A chimney for extracting gases from blast furnaces, although it also incidentally extracts dust, is not a dust extracting machine in any true sense, so as to be an anticipation of a patent for an apparatus for extracting dust from carpets, furniture, etc.

ROBERT H. INGERSOLL & BROS. v. McCOLL.

(District Court, D. Minnesota, Third Division, March 17, 1913. 204 F. R. p. 147.)

### 1. MONOPOLIES—PATENTS—LICENSE—VALIDITY OF PRICE RESTRICTION.

If a license restriction imposed by the owner of a patent is not for the purpose of protecting the patent or for securing its benefits, but for the purpose of evading the Anti-Trust Act (Act July 2, 1890, c. 647, 26 Stat. 209 [U. S. Comp. St. 1901, p. 3200]), it is void.

### 2. MONOPOLIES—PATENTS—LICENSE—VALIDITY OF PRICE RESTRICTIONS.

Complainants make and sell, under different trade names, watches containing parts which are patented. Each watch is placed in a box, and on some of the boxes is printed a notice or so called license restriction by which complainants attempt to control the price at which the watch may be sold by jobbers and retailers under penalty of being charged with infringement of the patents. Others of the watches, sold under different trade names, but having the same mechanism and containing the same patented parts, are sold without any restriction. Held, that such restrictions were clearly not intended to protect the use of the patents or the monopoly which the law confers upon them, but for the protection of certain of the trade marks, and that a purchaser who had no contract relations with complainants was not bound thereby.

METCALF v. HANOVER STAR MILLING COMPANY.

(Circuit Court of Appeals, Fifth Circuit, April 8, 1913. 204 F. R. p. 211.)

### 1. TRADE-MARKS AND TRADE-NAMES—UNLAWFUL COMPETITION—INFRINGEMENT—PRIOR USE.

Infringement of a trade-mark is inseparably involved in a suit for unlawful competition; the right to protection against the latter depending on first and exclusive use.

### 2. TRADE-MARKS AND TRADE-NAMES—“INFRINGEMENT”—“UNFAIR COMPETITION”—WHAT CONSTITUTES.

“Infringement” of a trade mark is the wrongful copying of a mark and sending forth thereunder an article well calculated to betaken for one already established in the trade, being regarded in the law as analogous to a trespass; while “unfair competition” consists in placing on the established trade of another an article or commodity dressed so as to be very like the other, and palming off the imitation as the original.

### 3. TRADE-MARKS AND TRADE-NAMES—PROTECTION—REQUISITES.

Right to protection of a trade-mark primarily depends on first invention or prior adoption and original exclusive use; this entitling the appropriator to common-law protection against similar and deceptive dressing coupled with fraudulent misrepresentation.

### 4. TRADE-MARKS AND TRADE-NAMES—UNFAIR COMPETITION.

To invoke the jurisdiction of equity to prevent infringement and unfair competition in the use of a trade-mark by another, it is incumbent upon complainant to show that he has a property right in the mark or thing which indicates the ownership or origin of the article, and that its use has been fraudulently invaded by the defendant, which property right is acquired chiefly by prior adoption and exclusive use of the mark or symbol relied on to distinguish complainant's proprietorship.

### 5. TRADE-MARKS AND TRADE-NAMES—UNLAWFUL COMPETITION.

In a suit for infringement of complainant's

“Tea Rose” trade-mark on flour and for unlawful competition, evidence held to require a finding that complainant was not the originator or first appropriator of such name and mark as applied to flour, but that both defendant and another milling concern had used the mark and name in that connection long prior to complainant's adoption thereof, and that it was therefore not entitled to relief.

### 6. TRADE-MARKS AND TRADE-NAMES—ABANDONMENT—EVIDENCE.

Abandonment of a trade-mark will not be found, unless supported by proof of a clear intention of the owner to entirely discontinue its use.

DOELGER v. GERMAN-AMERICAN FILTER CO. OF NEW YORK

(Circuit Court of Appeals, Second Circuit, March 10, 1913. 204 F. R. p. 274.)

### 1. PATENTS—SUIT FOR INFRINGEMENT—STARE DECISIS.

Where a patent has been the subject of extensive and hard-fought litigation, and has been uniformly sustained, another court should follow such decisions on substantially the same evidence, unless clearly of a different opinion.

### 2. PATENTS—VALIDITY AND INFRINGEMENT—FILTERING PROCESS FOR BEER.

The Stockholm patent, No. 378,379, for a filtering process for beer, claims 1, 2, and 4, held valid, and a verdict and a judgment finding infringement sustained.

SUNDH ELECTRIC CO. v. GENERAL ELECTRIC CO.

(Circuit Court of Appeals, Second Circuit, March 10, 1913. 204 F. R. p. 277.)

### 1. PATENTS—SUIT FOR INFRINGEMENT—WEIGHT OF EXPERT TESTIMONY.

While in cases relating to patents for mechanical devices the deliverances of experts are mere aids to the comprehension of the structure, and if there be dispute among them the judge can examine the device and decide for himself as to which is correct, the situation is changed when the field of electric, magnetic, and chemical patents is entered, and the court must perforce depend upon the assertions of some one who

has made a profound study of the subject and the weight to be given to the testimony will necessarily depend upon the measure of confidence which the witness inspires.

### 2. PATENTS—VALIDITY AND INFRINGEMENT—ELECTROMAGNET.

The Lindquist patents, No. 744,745 and No. 764,698, each for an alternating current electromagnet, held not anticipated, to involve invention, and valid as against the claim of prior invention; also infringed.

REIS et al. v. ROSENFELD.

(Circuit Court of Appeals, Second Circuit, March 10, 1913. 204 F. R. p. 282.)

### 1. PATENTS—ACTION AT LAW FOR INFRINGEMENT—DAMAGES.

In an action at law for infringement, where validity, title, and infringement of the patent are proved, plaintiff is entitled to recover at least nominal damages, although he is unable to prove any specific amount of actual damages, without availing of inadmissible conjectures.

### 2. PATENTS—INFRINGEMENT BY CORPORATION—LIABILITY OF OFFICER.

An officer and director of an infringing corporation cannot be held personally liable for the infringement, without proof that he was personally concerned in the same.

### 3. PATENTS—ACTION FOR INFRINGEMENT—EVIDENCE—SUBSEQUENT PATENT.

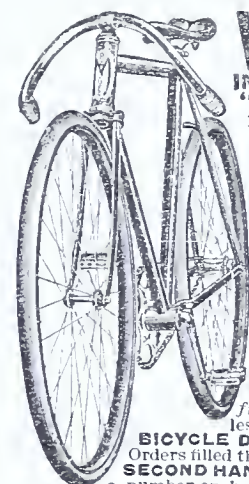
Where an article alleged to infringe is made under a patent subsequent to the one in suit, such patent is admissible in evidence, and may be considered on the question of infringement.

POOLE BROS. et al. v. ISAAC H. BLANCHARD CO.

(Circuit Court of Appeals, Second Circuit, March 10, 1913. 204 F. R. p. 285.)

### PATENTS—VALIDITY AND INFRINGEMENT—DESK CALENDAR.

The Wilson patent, No. 585,944, for a memorandum calendar, comprising a holder for desk calendars, while not a basic one, covers a combination which is novel, and the utility of which is proved by large sales, and should be conceded invention within its narrow limits; also held infringed.



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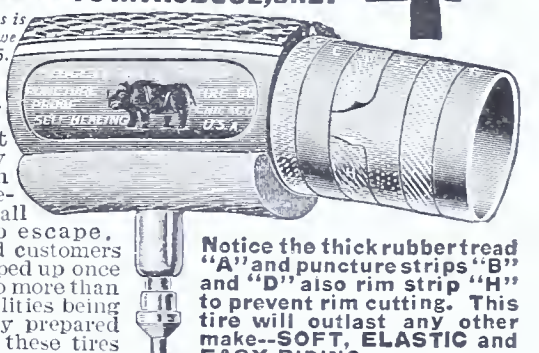
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## MECHANICAL INVENTIONS

Patents for which have been procured through the Patent Soliciting Office of E. G. Siggers, Patent Lawyer Washington, D. C.

Franz P. Edler, Chicago, Ill. Two patents. Window and Door Screens.—The first patent relates more particularly to the means for detachably securing the screen or other material in place on the frame without the aid of tacks or nails. In carrying out the invention there is provided a screen frame having a marginal groove in one face adjacent to the inner edge of the frame, and into this groove the edge of the wire cloth or other screen material is forced and securely held by four angularly bent metallic strips, one edge of which enters said groove and the other edge clamps over the screen material. The frame is also equipped with corner irons, each having on its outer edge a depending flange, the lower edge of which terminates in teeth, which are forced into the corners of the frame after the angle strips are in position and thus hold the same from working loose.

The second patent covers a window screen consisting of a pair of upper and lower screen members adapted to be readily introduced into and removed from a window frame, and capable of being arranged with both the upper and lower screen members at either the top or bottom of the window, or with one at the top and the other at the bottom to permit the heated air to escape at the top and the fresh air to enter at the bottom. The screen members are equipped with a device adapted to secure them in slidable engagement with the window frame and capable also of retaining the screen members at any intermediate position between the top and bottom of the window frame. The invention comprises strips arranged at opposite sides of a window frame, a screen provided at one side with a groove to slidably engage one of the strips and having a rabbet at the opposite side to receive the other strip, and a catch pivoted in a recess of the screen and adapted to swing inwardly and outwardly to engage it with, and disengage it from, the adjacent strip of the window frame, and provided with a resilient wing compressible against the catch to permit the latter to be moved into the recess and maintain the catch in frictional engagement with the window frame when the said catch is swung out of the recess.

Henry C. Hunt, Palacios, Texas. Tool for Removing Floors, Scaffolds, etc.—The invention relates to a tool designed for removing floors, siding, scaffolding and the like, and adapted to save material, time, and labor in taking down houses and fences and opening boxes, and capable of performing a variety of operations and of readily separating any two pieces of nailed lumber without scarring or otherwise damaging the same. The tool consists of a straight bar or body portion provided at one end with a downwardly inclined or angularly disposed neck, a short shank extending outwardly from the outer end of the neck in a plane approximately parallel with that of the straight bar or body portion, a cross head centrally connected with the outer end of the shank and extending from opposite sides of the same to form laterally projecting arms, and bills or fingers located at the ends of the cross head and extending upwardly therefrom at a point below the plane of the straight bar or body portion.

Ernest O. Hutsell, Englewood, Tenn. Pea Harvester.—This patent covers a pea harvesting machine adapted to gather peas from a plurality of rows of vines and deliver the harvested peas to a hulling machine or other receptacle, and equipped with mechanism capable of cutting the vines into short lengths to prevent long vines from being drawn into the machine and clogging the same. Another object of the invention is to enable the harvesting mechanism to be adjusted vertically to arrange the same at the proper elevation to suit the height of the peas or other vines, and also to enable such mechanism to clear obstructions and to be elevated out of the way when it is designed to transfer the machine from one place to another. The harvesting machine includes a main frame, an adjustable frame, an endless carrier mounted on the adjustable frame and provided with means for stripping the pods from the vines, a shaft mounted on the main frame and pivoting the adjustable frame to the same, gearing carried by the pivoted frame for connecting the shaft with the endless carrier, and other gearing mounted on the main frame and connected with the pivot shaft for rotating the same. The stripping mechanism consists of a series of spaced fingers projecting from the endless carrier and arranged to receive the vines between them, blades movably mounted on the fingers and adapted to close over the spaces between the same for gripping the vines between them and the fingers, a reciprocating bar connected with the blades, a spring arranged to move the bar to open the blades, and a relatively fixed guide arranged in the path of the bar for actuating the same to close the blades.

Christopher Kibat, Marengo, Ill. Feeder for Corn Shredders.—The object of this invention is to provide a feeder adapted to be readily mounted on corn shredders, and capable of being operated by the latter, and equipped with a cutter for severing the bands and provided with means for yieldably gripping the material to positively feed the same into the corn shredder. The feeder includes opposite side guides provided at their inner faces with longitudinal grooves, transverse shafts extending across the space between the guides, sprocket wheels mounted on the shafts, and an endless conveyer comprising sprocket chains located at opposite sides of the conveyer and arranged on the sprocket wheels, transverse slats extending across the space between the chains, laterally projecting slidable members consisting of flat shanks interposed between the links of the sprocket chains and the ends of the slats, integral annular stop flanges arranged in a vertical plane and extending across the grooves of the guides, and outer tapered rounded bearing portions formed integral with the annular flanges and projecting into the grooves to support the endless conveyer and maintain the sprocket chains in mesh with the wheels. Fastening devices secure the slats and the slidable members to the links of the sprocket chains.

William C. Kennedy, Jewett, Texas. Pinless Clothes Line.—The invention of this patent covers a pinless clothes line consisting of a series of links adapted to be readily folded when not in use, and equipped with a plurality of clothes engaging portions which are constructed to prevent an injurious clamping of the clothes when the clothes line is subjected to longitudinal strain. The links comprise a straight main stem, and side portions extending inwardly from the ends of the stem and bent to form an outer elongated substantially U-shaped bend, an inter-

mediate substantially straight clamping portion and an inner oblong loop, the terminal of the wire being coiled around the stem and the said intermediate clamping portion at the juncture of the latter and the oblong loop. The elongated bend is composed of a substantially straight outer side and inner and outer end portions, the inner end portion being arranged to form an entrance for the intermediate clamping portion. The oblong loop consists of inner and outer substantially straight sides and connecting ends, the inner side of the loop constituting a clamping portion to co-act with the stem, and the inner end forming an entrance for such clamping portion.

William H. Etter, Marietta, Ohio. Window Screen.—The aim of this invention is to provide a window screen designed to be hung exteriorly of the sashes and adapted to be swung inwardly and outwardly, and equipped with means for supporting the screen upon the window sill even when the screen frame is located beyond the same, whereby the window screen will be firmly maintained in its closed position and may be locked to the sill. A further object of the invention is to provide a metallic window screen having resilient means for supporting each of the marginal portions of the wire netting, and of permitting a uniform expansion and contraction of the same without twisting the frame of the screen or buckling the wire. The screen embodies a frame formed of two approximately rectangular clamping sections removably fitted together and each composed of channel bars rigidly secured together at their ends, wire netting having its marginal portions clamped between the inner and outer portions of the channelled bars, the inner sides or flanges of the outer frame members having their terminals free to permit such inner flanges to spring inward and outward uniformly, and fastening means piercing the outer sides or flanges of the channel bars and detachably connecting the two and clamping the sections together.

Andrew B. Craig, Tarkio, Missouri. Three patents.—The aim of the invention of the first patent is to provide a cooling device designed for use on pneumatic tires of various kinds of wheels, and capable of maintaining a sufficiently low temperature within a pneumatic tire to prevent the air contained therein from expanding and blowing out, or otherwise injuring the tire. The device comprises a circumferential cooling tube located within the tire, a radiator coil mounted on the wheel and connected with the cooling tube, a rotary pump carried by the wheel and communicating with the radiator coil for producing a circulation of a cooling medium through the radiator coil and the tire.

The invention of the second patent is an improvement on the first invention and provides a compactly arranged device equipped with a rotary pump located within the hub portion of the wheel for causing a circulation of air, or other cooling medium through the pneumatic tire. This invention includes a casing arranged at the center of the wheel and constituting a hollow false hub section, a radiator coil mounted on the exterior of the casing and supported by the same, a rotary pump housed within the casing and connected with the radiator coil, and branch tubes connecting the pump and the radiator coil with the pneumatic tire.

The invention of the third patent is designed to dispense with the radiator coil and is equipped with means for causing a circulation of air from the atmosphere circumferentially through the tire in close proximity to the inner

tube, to maintain a sufficiently low temperature within the same to prevent blowouts. The improved cooling device comprises a circumferential cooling tube of less diameter than and located within the pneumatic tire, and an air pump mounted on the wheel and connected with the interior of the cooling tube for producing a circulation of air through the same.

Reuben G. Detwiler, Boyertown, Pa., inventor; Harry L. Detwiler, Telford, Pa., assignee. Automatic Poultry Feeder.—This invention relates to a poultry feeder, capable of easy operation and adapted to scatter the feed over a comparatively large area. A further object of the invention is to equip the poultry feeder with a bait holder arranged to feed young chickens and adapted to educate fowls into operating the apparatus. The apparatus includes a hopper provided with a depending neck having a lateral outlet, a cut-off consisting of a sleeve surrounding the neck and slidable upwardly and downwardly on the same to vary the size of the outlet, a bearing member secured within the neck and having an opening corresponding with the outlet, a central stem journaled in the gearing member, a feed ejecting device secured to the upper end of the stem, an upwardly tapered scattering device, a combined bait holder and feeder supported by the stem, and opposite inclined tubular arms having an inlet opening at the top, and a hood slidable on the stem and forming a cover for the said opening.

George H. Horn, Vesper, Wis. Two patents. Silos.—The first patent relates to a silo adapted to dispense with the heavy door frame and cross brace, and capable of affording an adjustment at the opening, and of rigidly maintaining the hoop-receiving plates and members in engagement with the silo at opposite sides of the doorway. The silo comprises a body having a doorway, metallic plates fitted against the outer faces of the body at opposite sides of the doorway and provided with hook-shaped portions engaging the silo at the side edges or jam of the doorway, said plates being also provided at their rear ends with sleeves having right and left hand threaded sockets, and hoops composed of curved rods having threaded terminals extending through the sleeves and provided with nuts for engaging the inner ends of the same, and short straight rods extending across the doorway, and having right and left hand threaded terminals fitted in the said sockets and engaging the threads thereof.

The second patent covers an improved silo, comprising an adjusting device adapted to form a permanent door opening without a door frame or brace, and capable of exerting even pressure on the staves at each side of the door opening, and of providing a uniform tension on the binding rods or hoops and of enabling the same to be tightened without the use of a wrench, or other special tool. The invention consists of a binding rod having terminal portions projecting at the door opening, plates secured to the exterior of the silo at opposite sides of the door opening and having portions extending into the same and provided with openings through which the terminal portions of the binding rod passes, a turnbuckle extending across the door opening and bearing against the said plates and receiving the terminals of the binding rod, nuts mounted on the threaded terminals of the said rod, and coiled springs disposed on the latter and arranged to be compressed by the nuts.



## NEW PATENTS FOR SALE.

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**FOR SALE**—We have a patent for steel or iron forms for building solid concrete silos and tanks, which we wish to license on a royalty basis. Write to S. H. Love, 1111 Harris Avenue, Trenton, Mo. jan

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**FOR SALE**—Sanitary Belt and Pad. This invention relates to ladies apparel, having in view the neatness of appearance of wearer. Used also in hospitals and surgical operations and sickness. Price for patent \$2,500. Address, Mrs. A. Schulz, Box 550, Monticello, N. Y. jan

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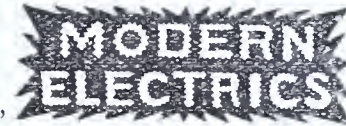
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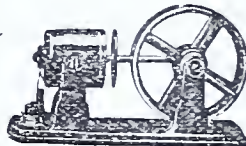
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## SOME TECHNICALITIES OF THE U. S. PATENT PRACTICE

To what length the technicalities of the practice of the U. S. Patent Office have been carried in the past is best shown by contrasting the practice of the English Patent Office with the practice of the U. S. Patent Office. Considering the fact, as pointed out in the October issue of the Age, that the Article of the Federal Constitution, as well as the laws bearing upon the grant of patents to inventors, are founded upon the English law, the divergence in patent practice between the two countries is extremely odd. Since the patent laws of both countries had their birth in the same source, it is difficult to see why there should be such a wide difference, and yet anyone who is familiar with the practices followed by the English Patent Office and the United States Patent Office, will confirm the statement that one has to unlearn all that he knows about the practice of one Patent Office in order to solve the mysteries of the patent practice of the other country.

Section 4888 of the Revised Statutes provides that an inventor when making application for patent should point out and distinctly claim the part, improvement or combination which he claims as his invention or discovery, and this provision of the law has been technically construed by the United States Patent Office to mean that he cannot claim modifications, or resort to alternative expressions, and must claim the construction rather than the function of his invention.

Suppose in a given case a certain device has two or more duplicate parts, each having identically the same function. The inventor not wishing to be limited to any particular number, must, under the United States practice, employ the words "plurality" or "series," in order to cover two or

more of the parts, whereas under the English practice the patentee might express his claim so as to read "two or more."

Suppose, in another case, the device may have one arm, or two arms, or three arms. Under the American practice the inventor could not use the phrase "one or more." He would have to use the word "one," and depend on the courts to construe a plurality or series, or more than one, to be comprehended by the word "one." Under the English practice, the inventor could use the words "one or more," and no objection would be made.

Moreover, occasions constantly arise in claiming an invention to use alternative expressions in the claims, as, for instance, "arms or bars," "legs or standards," "springs or weights." Under the English practice one could do this without objection, but not so under the practice of the United States Patent Office. If a claim were presented couched in such terms, or using such expressions, objection would be immediately made that the claims were alternative.

Inventors frequently conceive several different ways of producing the same result, and naturally they wish to include them all under one patent. Under the American practice an inventor is allowed to do this, provided he can draw a patentable generic claim of sufficient breadth to comprehend in its terms the different modifications shown. If he is unable to draw such a claim, then anyone of the modifications or forms of his invention which is not included within the terms of the generic or broad claim must be cancelled from the application. Under this practice an inventor must depend upon the broad claim to cover the different modifications, and if perchance the broad claim is invalid, then his patent is in a precarious situation, for under the American practice he can only claim in a single patent one form of his invention specifically, which means that when the broad claim is declared invalid, or found to be void, the patentee is protected only in that form of his invention which he has elected to claim specifically, assuming that such specific form has not been anticipated.

How different is this under the English practice! There a patentee may include in his application as many modifications as he pleases, assuming, of course, they are co related, and have for their object the production of the same general result. He is permitted to draw claims covering the invention broadly, and in addition, he may claim specifically each one of the modified forms, with the result that should his broad claim be found invalid for the reason that it is anticipated by the prior patents, he would then have all of his specific devices covered by separate claims.

Furthermore, under the English practice an inventor may use functional statements: that is to say, in drawing his claims he does not have to recite the construction of the parts used, but he can express his claim by reciting the result achieved by the

mechanism employed. Under the American practice, however, a claim is made objectionable when the inventor resorts to functional statements to differentiate his invention from prior patents, and the U. S. Patent Office does not hesitate to advise the applicant under such circumstances that his claim does not comply with the provisions of the statute, in that it does not particularly point out and distinctly claim the part or improvement or combination which constitutes the invention or discovery.

The instances we have enumerated do not exhaust the list by any means, but we have pointed out sufficient to show the radical differences between the practice of the United States and English Patent Offices. If we were asked to state which practice we prefer, we should say the English practice, as it admits of a more liberal interpretation of the patent in favor of the patentee. We have never seen a statement of the number of patents declared invalid by the courts of Great Britain, and we have no information on the subject, but we hazard the guess that the percentage is far less than that of the patents that are held to be void in this country.

## WORK FOR A NEW PATENT OFFICE.

Just now the Patent Office is torn up, literally speaking, with the work inaugurated during the present summer in making certain repairs to that building. It has been aptly described by experts as a fire trap. The fact that there has been no fire in the Patent Office since 1877, is a surprise to those who are familiar with the situation. With the amount of combustible matter around, it is nothing short of miraculous that this building has escaped the ravages of the fire fiend.

The work that is being done is for the purpose of installing a new lighting system throughout the building. When the work is finished, it is believed that many of the perils which have been imminent in the past will be avoided.

A walk through the halls of this old building discloses on every hand the congested conditions. Some of the corridors have been partitioned off so as to provide rooms. Along the sides of the corridors may be seen stacks of shelves containing copies of patents. The models have long since been put in boxes and carted away to some other part of the city. The visitor to Washington who goes to the Patent Office for the purpose of seeing the old models finds himself disappointed. It was one of the sights of Washington to wander through the halls and examine the models in their glass cases, but the demand for space necessitated removing the models from the cases and converting the model halls into rooms for the examining divisions. There is not a square foot of space which is not utilized. It has even been suggested to build a sort of a glass house in the courtyard, but it was found that the erection of such a structure would make the other rooms

facing on the court yard intolerable in summer. Try as they will to improve the present structure, the question comes up with each suggested change, "When are we going to have a new Patent Office?" Bills have been presented in Congress time and again with this object in view, but after they were printed no more attention was paid to them. The country spent millions of dollars to erect a Congressional Library, and yet contrast the importance of the two bureaus. Consider for a moment how many manufacturing establishments are dependent on patents. What great manufacturing enterprise was not built up on patents? We have sometimes thought that the manufacturers of this country were derelict in their duty to the Patent Office. Knowing, as they must know, the importance of the Patent Office to the business interests of the country, they should insist upon a building being erected that would be a credit to this nation, and enable the work of granting patents to be carried on satisfactorily. It has been estimated that it would add twenty-five per cent to the efficiency of the present force if a building were provided which would house the divisions of the Patent Office in a sanitary and proper manner. Where an examining division has from six to eight men crowded in one room, the work cannot be done properly. No wonder the tired brains of the Examiners refuse to act and the work falls behind. The time for action is at hand. Further delay is nothing short of criminal. Not only are the interests of the manufacturers of the country at stake, but the health of the Examiners is in the balance. Everyone should work for a new Patent Office, and every one can do his part to bring about the much-desired result.

## THE NEW COMMISSIONER.

Every one in Washington who has had occasion to visit the Patent Office is talking about the work of the new Commissioner of Patents. The wonder is how he can keep it up. Heretofore the Commissioner of Patents has done as little as he could. He seemed to think that it was his duty to hang around the halls of Congress hobnobbing with the statesmen and acquiring political pull. The present Commissioner thinks that his duty is at the Patent Office, and there he may be found every working day, busy as a man can be, in carrying on the manifold duties of that most important office.

Instead of depending upon law clerks to write his decisions, he dictates them himself. It is a pleasure to have a hearing before an official who not only listens to what you say, but understands what you are talking about; but the best part of it is the promptness with which he acts at the conclusion of the hearing. The difference is striking to one accustomed to that type of an official who did as little work as possible, and took the maximum of time to do that.

Not only in this way is the new Commissioner "making good," but along



other lines he shows his grasp of the details of the Office, and his determination to liberalize the practice and remove many of the technicalities which tend to cast discredit on the Patent Office. He has created a committee made up of some of the best Examiners in the Patent Office, whose duty it is to devise a system of marking which will enable the efficiency of Examiners to be properly determined, and in addition, he plans to restore the civil service examinations in the examining corps. The twofold method of the civil service examinations and a proper efficiency rating based on correct lines, it is believed, will tend to bring the best of the Examiners to the front, and remove from official preferment those who have only a political pull to commend them to their superiors. We recognize the fact that civil service examinations alone cannot determine a man's fitness to be promoted, but it is a good index of an examiner's general knowledge, especially if the questions are properly framed so as to bear entirely upon the practice of the Patent Office. With the efficiency rating, which it is expected will be worked out by the committee of Examiners, it is confidently believed that in the future, and certainly during the present administration, those assistant examiners who have merit and deserve promotion will receive what they are entitled to. There is no question that during the past administration some of the promotions were brought about through political preferment. There is nothing that hinders the work of the Patent Office more than a system of promotion which does not depend upon merit. An assistant examiner seeing men promoted around him who are inefficient, loses heart and becomes in time like his fellows. Instead of depending upon his own work, he looks for political support in his petition for promotion. Nothing that the Commissioner has done can excel his farsighted effort to solve what is believed to be a serious defect in the past administration of the Patent Office.

#### Typewriter Operated by Voice.

After the moving pictures that talk and the dictagraph, anything may seem possible in sound transmission; but to see a typewriter put down words that you utter does appear to be entering the realm of magic. Such an apparatus, however, which can be made to work by means of the human voice, so that spoken words will be set down in type, is being developed by a New York man. He employs a system of steel rods, which correspond in their operation to the fibers of the internal ear, and a number of electro-magnets. A sound spoken into the transmitter of a telephone sets the diaphragm vibrating. Each letter of distinctive sound possesses an individual overtone, and this affects the steel reed attuned to it, causing the reed to vibrate sufficiently to close an electric circuit. As soon as the circuit is closed, a magnet moves the key of the letter spoken. The apparatus is so far perfected that it already records accurately all the vowels when spoken

distinctly into the transmitter, but it has trouble with one of the consonants, which is attributed to the lack of sensitiveness in the steel reeds. It is not intended that the operator shall spell out the words into the machine, but a typewriter has already been devised that uses a shorthand system, and this will be found applicable in connection with such a machine. It will eliminate the stenographer, and simplify the work.

#### Bridges Erected by End Launching.

Two large bridges were recently erected by what is known as the end-launching method, which consists of floating one end of the completed span across the river on a barge, with the inner end mounted on railroad trucks. The largest of these bridges, a 475 foot span, said to be the longest and heaviest ever erected by end launching, crosses the Monongahela River in Pennsylvania, and was erected under peculiarly severe conditions. The other example is a bridge in Santo Domingo. The method of erection is described in a recent number of *Popular Mechanics*.

The Monongahela River bridge was constructed by a railroad completing an extension into the West Virginia coal fields. As the crossing is in the mountains close to the headquarters of the river, where rapid and wide variations in level occur, rises of from 5 to 20 feet within a few hours being frequent, the end-launching method was decided upon to prevent the work from being delayed by the floods. While the span was being erected upon the shore, a steel barge, 200 feet long and 36 feet wide, was built for use in floating the outer end of the span across the channel. This barge had to be passed through two locks, one of which is 154 and the other 164 feet in length. The only way to get it through was to raise its forward end ten feet out of the water, so that this end would project over the head walls of the locks. This was accomplished by supporting the forward portion of the barge on two auxiliary scows. Permission had also to be obtained from the government to build a temporary cofferdam a sufficient distance above the upper end of each lock to permit the closing of the lower gates behind the barge. The permanent head gates and the tail gates were then opened, the barge floated in with its front end projecting over the head walls, and the tail gates closed. Then the cofferdam was broken and the water allowed to flow in, raising the level to that of the upper channel.

When the barge was at last in position for its task, it was sunk until it floated just above the water, falsework was erected to a sufficient height to float the end of the bridge above the pier on which it was to rest, a time was selected when the stage of the river was right for operations, and then the water was pumped out of the barge until it rose two feet, picking the end of the span up and lifting it clear of the blocking. At this point, with everything ready to move the span, an exceptionally high flood occurred, the water rising 29 feet above its normal stage in six hours, with the current

moving at a speed of 25 miles an hour. Great cables held the barge in position under the span while the flood lasted, during which it was only saved from filling with water by the quick erection of a water-tight wooden bulkhead around it, as it had tilted to one side as it rose with the end of the span. Although danger of complete disaster faced the engineers during every moment of the flood, the equipment withstood the strain, and the span was finally moved across, the actual time of crossing being six hours.

The highway bridge erected in a similar manner in Santo Domingo is 330 feet in length. The river is 50 feet deep at the point of crossing and the bottom is so soft that the ordinary method of erecting such bridges could not be used.

#### Submarine Vision.

Few people are aware that the depths of the ocean are more clearly visible when seen from above, even from a considerable height, than from the surface. This fact, says the *American Review of Reviews*, was observed by the first balloonists who happened to traverse deep bodies of water, and has been strikingly confirmed by recent experiences of aviators.

When Bleriot made his famous cross channel flight in 1909, he was deeply impressed by the curious spectacle afforded him at a point near the town of Deal. He plainly saw the long line of submarines which, far beneath the water, in fancied obscurity, were following in the wake of two "destroyers."

Other aviators have made similar observations, and it was instantly apparent that, in case of a naval war, a fleet of aeroplanes might be of invaluable service in detecting these supposedly invisible enemies. But it is equally apparent that the securing of such clear vision of the depths of seas and lakes, with their flora and fauna, their shifting shoals and beds of sand, may be of much greater service in the cause of science, to say nothing of the location of sunken ships. Such vision, for example, would obviate much of the difficult and perilous labor of the diver. The reason for this vision at a greater elevation above the water than when near it is said to be because the water, no matter how transparent, does not absorb all the light rays which strike its surface: a part of the incident light is reflected as from a mirror. This is especially evident toward sunset, when the brilliant colors of the sky are dazzlingly reflected from the water, and even when the sun is veiled the same thing is shown by the fact that the water looks blue or gray according as the sky is clear or crowded.

But the reflecting power of the water augments with the obliquity of the rays which strike its surface, and the observer whose position is elevated to a sufficient height receives a larger quantity of vertical rays. At the same time that the brilliance of the reflection diminishes, that of the submarine depths augments, because the retina of the observer receives a greater quantity of light on a given surface in direct proportion to the distance; just

as in a landscape the background is more luminous than the foreground.

It is not necessary, however, to make use of an airship to secure this direct vision of submerged objects. It may be obtained by the simple expedient of cutting off the reflected rays. This is accomplished by the optical instrument known as the "Dibos water glass," which is a light tube about 6 feet long, covered with black cloth with a glass plate at its lower end. This suffices to eliminate the light reflected from the surface and the eye receives only the light proceeding from immersed objects. This system is in use in the glass bottomed boats which are employed along the coast of California.

#### Detecting Forgeries by Invisible Light.

By the use of a lens made of quartz covered with a thin film of metallic silver, says *Popular Mechanics*, a professor of Johns Hopkins University has developed a practical means of making photographs by the invisible rays of light above the spectrum, known as the ultra-violet rays. The quartz lens is necessary because these rays will not pass through ordinary glass, while the silver film acts as a screen to shut out all the visible rays and those below the spectrum, admitting only the ultra-violet light.

Most white objects appear black when photographed by this invisible light. By its use, also, perfectly transparent objects, like glass, can be photographed in black. Photographs of the planets made with this apparatus have been of service in determining the nature of the material and elements of which the stellar bodies are composed. Photographs of the moon, for example, showed conclusively the presence of sulphur in one of the so-called craters on the moon's surface, thus furnishing a further indication that these craters are of volcanic origin.

A practical use of photography by invisible light is its application to the detection of forgeries. Chemical means used by forgers in altering checks and documents have been perfected to the point where it is often impossible to detect the erasures by the use of a microscope. A check originally written for \$24 was raised by a clever forger to \$2,400 and passed the cashier of one of the largest banks in Baltimore without detection. A photograph with the ultra-violet rays showed clearly a smudge where a heavy line had been erased and the word "hundred" written in after "twenty-four," thus proving the check to have been a forgery.

Chemical methods have been frequently resorted to for testing the authenticity of disputed documents, such as wills, deeds, notes and checks, as well as supposedly ancient manuscripts, but the use of chemicals often spoils the paper under test. The ultra-violet photography, however, does not injure the document in any way.

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Hot-air apparatus.....V. G. and M. Fastiggi  
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Ice-manufacturing apparatus.....L. L. Wilson  
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Inhaler and respirator.....F. J. McSpirt  
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Insect or worm destroyer.....S. H. Martin  
Insulator, Strain.....F. G. Woodcock  
Internal-combustion and liquid-actuated engine.....G. B. Dunbar  
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Kinematographic film.....C. Dupuis  
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Lace, Thread-tensioning device for machines for the manufacture of pillow.....A. Matitsch  
Lacquer, Japan, &c., Apparatus for recovering vehicles used in application of.....W. S. Rowland  
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Machine and portable track therefor, Combined self-propelling.....G. E. Turner  
Magnetic separator.....L. G. Rowand  
Mail-delivering and receiving apparatus.....A. E. Dickson  
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Cradle rocking device, Child's ..... A. J. Smith  
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Crate, Folding ..... W. Buckhannon  
Credit slip holding memorandum device ..... J. H. Ringer  
Crushing machine ..... E. B. Symons  
Culverts, Bank retainer for ..... B. Scully et al.  
Curving iron, Self heating ..... H. G. Nilson  
Curtain support, Adjustable ..... C. M. Thurston  
Cushioning device ..... A. Horton  
Cutting machine ..... A. J. Cumnock  
Cutting tool projector ..... J. Smith  
Dental vulcanizer ..... A. C. Hulbert  
Directory ..... F. S. Richmond  
Display racks Wing or panel for ..... T. E. Creech

Diving apparatus for machine exploration and the like ..... W. J. O'Connor  
Door ..... F. F. Miller  
Door hanger ..... J. L. Kail  
Door lock, Single-bolt ..... A. L. Capps  
Door mounting, Sliding ..... G. Molda  
Dough and the like molding machine ..... P. E. Foster  
Draft gear ..... J. R. Cardwell  
Draft rigging ..... J. J. Byers  
Draining apparatus ..... H. C. Klock  
Dress hook ..... M. R. Stoddard  
Drying machine ..... J. H. Lorimer  
Drill ..... E. C. Lortz  
Drill steels, Fluid-feeding attachment for hollow ..... W. Prellwitz  
Electric-box connection ..... F. H. Ward  
Electric furnace ..... A. Heffenstein  
Electric-light fixture ..... R. C. Sage et al.  
Electric switch (2 pats.) ..... M. Guett  
Electric switch ..... L. G. Copeman  
Electrical apparatus ..... S. M. Esler  
Electrical machine, Dynamo ..... D. H. Andrews et al.  
Electricity, Chemical generator of ..... O. Sozzi  
Electrolytic meter ..... E. Weintraub  
Electromagnetic motor ..... H. A. Rhodes  
Electromagnetic waves, Apparatus for localizing the radiant point of ..... N. Taraka  
Elevator automatic brake ..... J. E. Morgan  
Ellipsograph and square, Combined ..... S. Levine  
Embroidering machine ..... A. Nufer  
Embroidering machine Automatic ..... K. Eggart  
Engine-igniting mechanism, Internal combustion ..... A. L. Moeller  
Engine-priming device, Internal-combustion ..... G. R. Wadsworth  
Engraving machine ..... R. E. Gray  
Envelope ..... C. J. Hordis  
Evaporating apparatus ..... D. Cozzolino  
Evaporator ..... A. S. Morris  
Explosive engine ..... W. H. Schillinger  
Extension table ..... C. J. Pasmore  
Eyeglass mounting ..... W. B. Payne et al.  
Eyeglasses ..... E. B. Meyrowitz  
Fastener ..... F. M. Sturges  
Fastener for gloves, shirt waists, and the like ..... P. J. Kane  
Feed-water heater ..... H. H. Vaughan  
Feeder ..... C. L. Carman  
Fence clamp ..... R. L. Stringfellow  
Fertilizer distributor ..... J. S. Dungan  
Filter ..... L. V. Rood  
Filter press ..... F. S. Guy et al.  
Fire-escape apparatus ..... K. L. Elsner  
Fire extinguisher ..... C. S. Taylor et al.  
Fireproof building construction ..... H. J. Wagner  
Flexible coupling ..... J. B. Meriam  
Fluid compressor ..... W. Prellwitz  
Fluid-pressure brake ..... W. V. Turner  
Fluid-pressure-operated tool ..... W. Prellwitz  
Flush-tank device ..... W. F. Drew  
Fly trap ..... S. C. Dorland  
Flying machine ..... H. L. E. Johnson  
Folding and convertible table ..... J. S. Simonton  
Folding frame ..... L. I. Beckwith  
Force-feed lubricator ..... C. W. Manzel  
Funnel ..... I. L. Robblee  
Furnace ..... J. Churchward  
Furnace burner ..... G. L. Fogler  
Furnaces, Cleaning reversing ..... P. G. Faherty  
Furniture support, Non-sweating ..... A. P. Jones  
Game ..... C. W. Graves  
Garbage or refuse vehicle ..... C. Putzel et al.  
Gas engine, Rotary ..... M. Auensen  
Gas-meter connection ..... M. A. Corbett  
Gate ..... C. H. Matlock  
Gear, Variable-speed ..... W. and W. A. Church-Smith  
Glass furnace and process ..... P. L. T. Heroult  
Glass grinding and polishing apparatus, Plate ..... J. W. Crikshank  
Glass grinding, smoothing, and polishing apparatus, Plate ..... E. Bagnall  
Glove ..... A. Charney  
Grain-cleaning machine ..... J. McDaniel  
Graining tool ..... S. F. Grubb  
Gravity separator ..... F. O. Keene  
Grease cup ..... W. A. Keith  
Gun magazine, Detachable ..... T. D. Layman  
Gun-strap fastening ..... C. Lutkens  
Harrow ..... D. Ferguson  
Harrow, Adjustable ..... J. T. Hill  
Harrow, Flexible ..... W. Lutze  
Harvester, Beet ..... J. Bocker  
Heat-conserving, heating, and cooking apparatus, Electric ..... G. G. Bell  
Heat-storage device for heating water or other liquids ..... G. G. Bell  
Heating and ventilating buildings ..... C. E. Beery  
Heating appliance ..... A. F. Burdick  
Heating device ..... W. A. Hext  
Heating method and apparatus (2 pats.) ..... G. G. Bell et al.  
Heating water ..... R. R. Foster  
Heating water and other liquids or fluids, Apparatus for ..... G. G. Bell  
Hinge, Awning blind ..... H. D. Wheatley  
Hinge joint for artificial legs ..... J. Wambsgans  
Hinge, Suspension ..... R. G. Winter  
Hoisting mechanism ..... F. A. Skiff  
Hooper and supporting frame therefor ..... P. C. Grose  
Horseshoe calk, Removable ..... H. R. Young  
Hose coupling, Tender ..... C. B. Baker  
Hot water by means of electricity and apparatus therefor, Method of producing ..... G. G. Bell et al.  
Hydrocarbon furnace ..... M. Connor  
Ice box and house cooler, Combined ..... J. A. Smith  
Ice-cream-cone dishes ..... T. J. Brandt  
Index case, Card ..... E. G. Sampson  
Insulating coating on electrical conductors, Production of an ..... J. Loewenthal  
Internal-combustion engine ..... F. Joswich  
Jewelry ..... A. W. Henning  
Jogger ..... A. J. Bates  
Joint ..... W. L. Evans, Jr.  
Journal jack ..... W. E. Quinn  
Key ring, Calendar ..... C. K. Davis  
Kinematographic performance and an acoustic accompaniment thereof, Obtaining synchronism between ..... J. Beck  
Knife attachment ..... E. A. Saltzman  
Ladder, Folding extensible ..... A. N. Faulkner



- Lamp bracket ..... J. Meltz  
Lamp mechanism, Automobile, D. S. Hughes  
Land roller and harrow, Combined, J. Hist  
Land roller, packer and pulverizer, .....  
Lantern ..... W. L. Keller  
Lantern, Tubular ..... F. W. Dressel  
Last-making machine ..... C. W. Bergener  
Lavatory, Sanitary ..... E. J. Prindle  
Lighter ..... F. E. Corey  
Lighting arrester ..... H. D. Coleman  
Link, Fusible ..... A. J. Warts  
Loom ..... E. M. Stephens  
Loom, Hair ..... T. P. Walsh  
Lubricating device for plug cocks, E. Martin  
Lubricator ..... E. V. Lambeth  
Mail-box attachment ..... T. M. Gaughan  
Mail-pouch fastener ..... J. L. Smith  
Manufacturing pad ..... J. J. McKay  
Mantle-shaping machine for inverted man-  
tles ..... O. Kaufman  
Mantle-shaping machine for upright man-  
tles ..... O. Kaufman  
Manual motor ..... D. F. Frisinger  
Match-box holder ..... A. Goldschmidt  
Measuring power in electric circuits, Meth-  
od of and means for ..... H. J. Ryan  
Meat-cutting machine ..... E. R. Smith  
Mechanical movement ..... S. O. Gould  
Metal clamps, Device for applying, .....  
Metal-turning machine ..... W. L. Evans, Jr.  
Metal wheel, Cast ..... F. V. Buckwalter  
Metallic tie ..... C. M. Smith  
Metallurgical apparatus ..... W. M. Johnson  
Milk modifier ..... A. M. Alberty  
Mixing machine ..... S. F. Hanson  
Mold ..... W. F. Winn  
Molding machine (2 pats.) ..... C. Bouillon  
Molding machine ..... W. Boyd  
Motor control system, Electric, C. Renshaw  
Mower attachment, Lawn ..... F. J. Anderla  
Mud guard ..... G. L. Humble  
Mud-guard support ..... L. Wilson  
Music stand and case, Combined, J. Hoonen  
Nail file ..... W. J. Kelly  
Nut ..... E. L. Marston  
Nut-cracking machine ..... G. W. Gable  
Nut splitter ..... E. J. Chandler  
Oil burner ..... H. F. Baker  
Ores and recovering gases therefrom, Pro-  
cess and apparatus for roasting .....  
Ores and recovering zinc therefrom, Roast-  
ing ..... C. J. Reed  
Ores, Treating ..... C. C. Titus et al.  
Oven ..... J. Lawrence  
Package tier ..... J. D. Morrison  
Pail, Dinner ..... S. Phelps  
Paper-bag machine ..... W. T. Dulin  
Paper-making machines, Automatic felt-  
tightener for ..... F. B. Hooker et al.  
Paving and making the same, W. A. Newton  
Phonographic horn ..... F. W. Houlston  
Piano-player mechanism (Reissue) .....  
Pipe gripper, Internal, S. R. McConnell  
Pipe joint, Swinging ..... W. Kirkwood  
Pipe-threading tool ..... B. Borden  
Pliers, Combination tool handle, M. M. Brice  
Plow, Beet ..... L. E. Fenton  
Plow stock ..... J. M. Baxter  
Plow, Wheeled ..... T. A. Freeman et al.  
Plows, Means for tilting the earth-turning  
elements of wheeled ..... W. H. Lee  
Pottery, Apparatus or machine for use in  
shaping articles of ..... F. Hancock  
Power-generating and transmitting appar-  
atus ..... L. E. Warren  
Power-generating apparatus, E. F. Hopkins  
Power transmission, Variable speed, .....  
Press ..... J. S. Pletts  
Pressing machine ..... J. C. Fiddymont  
Printer's drying rack ..... D. M. Cooper  
Printing machine ..... E. L. Scofield  
Printing mechanism ..... J. H. Hastings  
Printing mechanism for adding machines, .....  
Printing press (3 pats.) ..... R. T. Johnston  
Printing-press gage ..... J. H. Dyer  
Printing text on tapes, Apparatus for, .....  
Projectile ..... M. Baumann  
Propulsion mechanism for vessels, F. C. Sauer  
Pulling-over machine ..... A. Bates  
Pulverizer for oil engines ..... H. Lempp  
Pump, Cattle ..... R. Nickerson  
Pump, Lubricator ..... W. L. Kenfield  
Pump, Vacuum ..... J. Zeitlin  
Pumping apparatus ..... S. W. Titus  
Pyrometer ..... J. Churchward  
Rail brace ..... C. W. Davis  
Rail chair ..... T. Coleman  
Rail joint ..... J. R. Crosser  
Rail-laying apparatus (Reissue), J. Reinher  
Railway rail ..... R. D. Moore  
Railway rail ..... O. Bensinger  
Railway-rail clamp ..... F. Maas  
Railway rails, Anticreep for .....  
Railway safety apparatus ..... C. W. Reinohl et al.  
Railway tie ..... J. D. Nix  
Railway tie ..... W. A. O. Jones  
Railway tie ..... G. I. Battelle  
Railway tie ..... W. G. Coulter  
Railway tie ..... J. H. Akin  
Ram, Hydraulic ..... G. J. Fleissner  
Razor, Safety ..... W. R. Phillips  
Razor, Safety ..... A. J. Postans  
Razor, Safety ..... T. Bumann  
Razor-strop hanger, Self-aligning, E. Hunold  
Razor, Vibratory safety, G. H. Tuttle  
Refuse burner ..... J. Prescott  
Resilient wheel ..... J. H. W. Kepler  
Respirator ..... R. A. Myles  
Reversing furnace ..... P. G. Faherty  
Rim, Demountable, F. and N. M. Spranger  
Ring gage ..... J. B. Ingalls  
Road-working machine ..... P. V. Burson  
Rope clamp and hook, Combined, .....  
Rope tie ..... W. H. Harrison  
Rotary engine ..... J. Heberling  
Rubber goods, Manufacture of India, .....  
Rule, Folding ..... F. X. Rudler  
Sash construction, Metal .....  
Sashes, Corner piece for window, P. Winsor  
Scale, Automatic recording, E. McGarvey  
Screw driver ..... A. A. Zwiibel  
Screws, cap screws, and the like, Upsetting  
set ..... T. Ferry  
Separating apparatus ..... H. Parker  
Separator ..... J. N. Wingett  
Sewed articles, Seam for, W. E. Bailey  
Sewing knitted fabrics, Machine for, .....  
Sewing machine ..... W. H. Zellers  
Sewing-machine attachment, W. A. Daley  
Sewing-machine attachment, J. A. Poirier  
Sewing machine, Convertible rifling and  
collarette ..... J. P. Weis  
Sewing machines, Cloth-supporting attach-  
ment for ..... F. G. Wilcox  
Shade-controlling device, Window, .....  
Shade roller, Spring ..... H. E. Hawes  
Shade roller, Window, R. F. Schindler  
Shaft, Flexible ..... E. C. Oliver  
Shaper ..... R. S. La Rue  
Sharpening, Disk ..... G. W. Trone  
Sharpening, Knife ..... S. W. Hale  
Sharpening, Lawn mower, H. F. Cook et al.  
Sharpening apparatus, Blade .....  
Shirt ..... C. E. A. Gronbeck  
Shock absorber, Pneumatic, L. S. Pace et al.  
Sieve ..... J. W. Ford, Jr.  
Sieve, Flour-mixing ..... D. W. Beckner  
Sign ..... J. W. Larson  
Sign, Electric ..... F. Schaefer  
Sign, Electric ..... A. C. Meyer  
Signaling system, Selective, A. C. Reid  
Skins, Producing imitation piece, .....  
Sled, Power-propelled ..... R. J. Steiner  
Slicing machine ..... A. Anderson  
Smelting furnace, O. S. and O. J. D. Lusehka  
Smoke consumer ..... T. E. Lappage  
Speed-changing mechanism, Differential, .....  
Speed indicators, Clockwork for, .....  
Speed mechanism, Variable, T. S. Grimes  
Speed-regulated brake, W. V. Turner  
Spike ..... L. B. Lazear  
Spinning machine, Artificial silk, L. Morane  
Spoke-tensioning machine ..... C. Muse  
Spool stand, Jack ..... J. Rennie  
Sprayer ..... G. R. Walker  
Spring-lid box ..... J. R. Smdee  
Spring wheel ..... S. Gordon  
Spring wheel ..... V. Martin  
Stair structure ..... H. C. Baldry  
Stamp ..... L. R. Schmidt  
Stamp, Hand ..... M. Tilden  
Stamp, Hand ..... E. M. Rathburn  
Stamp rack ..... A. Buhl  
Staple, Fence post ..... P. J. Haas  
Stay bolt ..... H. A. Laerda  
Stay or spring, Garment, M. M. Beeman  
Steam engine ..... E. F. Edgar  
Steam generator (3 pats.), L. Steinmuller  
Steel process ..... J. Churchward  
Steering device ..... A. M. Squire  
Stencil, Wax ..... H. E. Krueger  
Stove lid, Air-heating, T. E. Lewis  
Straw of flax and the like, Mechanism for  
treating the ..... B. S. Summers  
Stump burners, Draft apparatus for, .....  
Street sweeper ..... J. E. Entrekin  
Strickle apparatus ..... M. W. Ewing et al.  
Supporting bracket ..... W. Storey  
Suspenders for socks ..... J. R. Smith  
Switch ..... F. Barth  
Switch ..... W. J. Barnett  
Switch ..... V. H. Carman  
Switch box, Electric ..... L. B. Hornbeck  
Switch thrower ..... P. R. Hart  
Switching device ..... F. W. Harris  
Table-cloth clasp ..... C. Hatzfeld  
Talking machine ..... M. A. Possos  
Talking-machine cabinet ..... R. Preszter  
Tally, Marking ..... W. W. Lillard  
Tanks, Means for controlling the escape of  
fluid from ..... A. G. Hurdman  
Tape and plumb line ..... O. L. and J. D. Weaver et al.  
Taxicab controller, Coin-controlled, .....  
Telegraph, Facsimile ..... W. L. Majors  
Telephone-locking mechanism, F. De Bernochi  
Telephone-locking mechanism, W. A. Morse  
Telephone-receiver holder ..... A. Wetzel  
Thermometer, Oven ..... W. V. Robinson  
Thermometer, Self-recording .....  
Thermometer ..... T. H. Wurm et al.  
Thermostat for controlling furnaces .....  
Ticket book, Railway ..... L. A. Larson  
Ticket, Pin ..... R. J. Joyner  
Tie holder and pressing device, Combined, .....  
Tie plate ..... J. R. Gibson  
Tie plate ..... J. A. Byers  
Time recorder, Elapsed ..... J. W. Bryce  
Time recorders, Card holder for .....  
Tire cooler ..... C. E. Tomlinson  
Tire, Pneumatic ..... C. B. Swift  
Tire, Pneumatic ..... R. and R. White  
Tire, Pneumatic ..... B. W. Wittenberg  
Tire, Punctureless spring, D. W. Martin  
Tire rim, Demountable, B. C. Ball et al.  
Tire, Vehicle ..... W. C. Sneyd  
Toilet case ..... W. L. Deming  
Tongue, Removable ..... P. L. Fagot  
Tool holder, Automatic combination .....  
Tools, Forming ..... C. F. Heinkel et al.  
Torch, Oxy-acetylene, T. Montgomery et al.  
Transformer ..... S. E. Johannesen  
Transmission mechanism ..... J. A. Ricard  
Trap ..... D. A. Shea  
Trap ..... W. S. Osborne  
Trap chamber cover ..... H. E. Reed  
Trap door ..... W. H. Mussey  
Trolley ..... S. F. Walker et al.  
Truck ..... S. A. Bemis  
Truck ..... A. F. Hoos  
Truck-steering mechanism, H. H. Harris  
Turbine, Elastic-fluid ..... C. B. Rearick  
Turbine engine, Gasolene ..... F. C. Johnson  
Turbines, Axial-thrust compensator for, .....  
Type-writer ..... H. Fottenger  
Type-writing machine (2 pats.) ..... W. A. McCool  
Type-writing machine ..... A. G. F. Kurovski  
Type-writing machine ..... C. Orbell  
Type-writing machine ..... R. W. Uhlig  
Typograph ..... W. A. Reade  
Umbrella steamer ..... S. I. Goldstein  
Vacuums, Method and apparatus for pro-  
ducing high ..... W. Gaede  
Valve ..... W. M. Saefke  
Valve ..... C. Spillan  
Valve ..... E. H. Oderman  
Valve ..... D. F. Fox  
Valve ..... M. J. Rosenstein  
Valve-actuating means, Automatic, J. Cowles  
Valve apparatus ..... E. P. Noyes  
Valve, Bottle ..... C. F. Leng  
Valve, Combined trip and throttle .....  
Valve for reversing furnaces, Air and  
stack ..... P. W. Knauf  
Valve gear for steam engines, F. Tschudy  
Valve mechanism for pneumatic scrubbing  
appliances ..... A. E. Moorhead  
Valve, Reversing ..... J. A. Herriek  
Vault, Burial ..... J. Rector  
Vehicle ..... L. Clark  
Vehicle-driving and braking mechanism, .....  
Vehicle frame ..... J. S. Copeland  
Vehicle gear, Short-turn, G. H. Humphrey  
Vehicle, Motor ..... T. Sandstrom  
Vehicle-propelling means, Child's, M. Moskowitz  
Vehicle shock absorber ..... J. Horanszky  
Vehicle shock absorber ..... C. H. Staub  
Vehicle wheel ..... R. Tjader  
Vehicle with portable rails ..... J. W. Calta  
Vehicles, vessels, or the like, Means for  
propelling ..... W. Meier  
Vending machine ..... M. Drexel  
Ventilator ..... I. F. Harris  
Voting machine ..... E. Hamilton  
Voting machine ..... J. H. Dean  
Voting machine ..... W. J. Lansterer  
Voting machine ..... A. McKenzie  
Wagon cover ..... R. Batten  
Warp-tying machine ..... O. and O. Fischer  
Washing-machine agitator, E. L. Watrous  
Watch ..... M. Sporleder  
Water-closet valve ..... M. Marino  
Water heater, Instantaneous, J. J. Lisch  
Water-purifying plant ..... J. C. Barr  
Water-tube boiler ..... H. B. Bradford  
Weighing apparatus, Liquid, .....  
Welding wire fabrics, Machine for electric-  
ally ..... H. B. Manly et al.  
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Window box, Removable, A. E. Putnam  
Window fastener, Casement, H. Greene  
Window screen ..... C. L. Jackson et al.  
Window sills, Adjustable receptacle for, .....  
Wire fabric ..... H. Greene  
Wire stretcher ..... S. N. Pond  
Wire stretcher ..... I. H. Lewis  
Work bench ..... J. P. Mackay  
Wrapper folder ..... L. Fischer  
Zinc, Recovering ..... C. J. Reed  
Book holder, Note ..... C. L. Dahlberg  
Book, Loose-leaf ..... F. E. Housh  
Bottle-capping machine ..... C. Hartwig  
Bottle-filling and closing apparatus, .....  
Bottle, Non-refillable ..... J. L. Zeiler  
Bottle, Non-refillable ..... J. McGinniss  
Box ..... O. E. Green  
Box ..... G. E. Shine  
Brake ..... R. D. Ralston  
Bread and butter cutting machine .....  
Broom ..... S. D. Williams et al.  
Broom head ..... L. M. Sartain  
Broom head ..... H. Hampton  
Buckle ..... C. A. Brewer  
Bung retainer and seal, J. Popper  
Buoy, Automatic indicating, A. J. Hebert  
Burner ..... B. Iglesias  
Butadiene and derivatives thereof, Produc-  
ing ..... O. Schmidt  
Butter container ..... E. A. Eiband  
Butter, Nut ..... C. Lande  
Button-fastening machine, G. W. Perkins  
Button-fastening machines, Lower raceway  
for ..... E. D. Morgan  
Cabinet, Paper ..... J. Welsh  
Calculating and type-writing machine .....  
Calculating elapsed time values, Means for .....  
Calculating machine (2 pats.) ..... W. W. Hopkins  
Calendar, Procrastinator's, G. H. Townsend II.  
Cameras, Focusing attachment for, .....  
Can-closing machine ..... W. H. Boehler  
Can opener ..... D. P. Robinson  
Can opener ..... H. J. Schmidt  
Can-opener and combination implement, .....  
Cane trash, Machine for cutting sugar, .....  
Canopy ..... W. J. Kent  
Canopy ..... G. C. Locklin  
Caoutchouc-like substances, Producing, .....  
Caoutchouc substance and making same, .....  
Caoutchouc substances, Production of, .....  
Car brake ..... F. Hofmann et al.  
Car buffing mechanism, Railway, J. W. Tagert  
Car center bearing, K. Edahl  
Car center bearing, J. M. Hopkins et al.  
Car-door lock ..... R. H. Bates  
Car-door-locking device, R. W. Burnett  
Car draft rigging, Draft yoke for railway, .....  
Car draft rigging, Railway (2 pats.), .....  
Car draft rigging, Railway, G. A. Johnson  
Car draft rigging, Railway, G. O. Lewis  
Car draft rigging, Railway, W. H. Miner  
Car draft rigging, Railway, J. F. O'Connor  
Car, Dump ..... A. Campbell  
Car end ..... W. T. Van Dorn  
Car hood ..... W. Lamplugh  
Car-lighting system, H. G. Thompson  
Car or train-controlling apparatus, Rail-  
way, B. F. Oler  
Car, Railway (2 pats.), W. M. Ryan  
Car, Railway, B. V. H. Johnson  
Car side bearing, Railway, J. F. O'Connor  
Cars, Foot warmer for, H. Evans  
Cars, Ridge brace for, A. Treptow  
Carburetor ..... A. P. Brush  
Carburetor ..... W. F. Schulz  
Card, Combination code, F. Hoffman  
Carpet to concrete floors, Means for fas-  
tening ..... H. MacLean  
Carrier ..... P. Nosek et al.  
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Catalytic substances in a minutely-divided  
state, Preparation of, H. Kast  
Cattle guard ..... L. W. Carden  
Chains, Manufacturing unwelded, .....  
Churn ..... S. K. v. Eeseghy  
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Churn, Barrel, J. E. and T. G. Taylor  
Cigarette former ..... F. C. Cooper  
Cigarettes and other similar articles, Ma-  
chine for packing, E. L. Bracy  
Circuit breaker ..... W. E. Sands  
Cleaning apparatus, Suction, T. C. Baillie  
Clock-winding and setting mechanism, .....  
Closet bowl ..... E. E. Wilkinson et al.  
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Closet bowls, J. B. Brittain  
Cloth-pressing machine ..... G. Baujard  
Clothes pin ..... J. C. Strange  
Clutch control ..... R. W. Peterson  
Clutch mechanism ..... F. Barz  
Coat and hat hanger, J. W. McKay et al.  
Cock, Ball ..... E. L. Delany  
Cock, Water gage ..... C. D. Donovan  
Coffee beans for the elimination of deleteri-  
ous constituents thereof, Treating .....  
Collapsible tube ..... F. Schmidt  
Collapsible tube ..... B. E. Linfoot  
Collar ..... G. H. Bristol  
Collar-stuffing machine, Horse, H. E. Doane  
Concentrating pan ..... L. Bowerman  
Concrete-block machine, Twin, .....  
Concrete-form fastener ..... G. H. Harrison et al.  
Concrete mixer and spreader, H. M. Sherwood  
Conduit box ..... W. L. McFarland  
Conduit box ..... F. J. Harst  
Conveyer, Link-belt ..... W. F. Petersen  
Coop, Poultry-shipping ..... M. E. Tynes  
Copper from its ores, Recovering, .....  
Core picker, Friction ..... E. Schaaf et al.  
Corn picker, Friction ..... W. A. Brule  
Corn-drying rack ..... A. Van Roekel  
Cotton cleaner and separator, S. F. Krupp  
Coupling ..... F. Newlin  
Cranberries and other products, Machine  
for venting, H. H. Harrison  
Crane, Luffing ..... A. H. Mitchell  
Cross-roller support ..... R. W. Peterson  
Cultivator ..... L. Sessler  
Cultivator ..... W. P. Morrow  
Culvert ..... F. G. Bradbury  
Curtain retainer ..... J. Stone  
Curtain rings, Drapery suspension pin for .....  
Curtain rod and bracket, E. B. Ashmore  
Cutting machine ..... F. L. Lathrop  
Cycle side bar, Motor, E. M. Johnson

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#### MECHANICAL PATENTS.

- Abrading cylinder, F. L. Olmsted et al.  
Acid-phosphate chambers, Apparatus for  
emptying ..... A. Shepanek  
Adding machine ..... R. H. Little  
Addressing machine, Card, J. G. Knurck  
Addressing machine, Tag, G. T. Pritchard  
Advertising device ..... M. H. Harris  
Advertising display stand, .....  
Aerial craft, Means for supplying stores  
or other articles to, C. S. Snell  
Aeroplanes, balloons, kites, &c., Propelling  
and steering structure for, M. K. Kasmar  
Aeroplanes, &c., Ejector for apparatus for  
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matic ..... M. A. Brown  
Alloy ..... A. L. Brooke et al.  
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Amusement apparatus ..... G. H. Loucks  
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Andiron ..... J. W. Mitchell  
Animal trap ..... H. Krippene  
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Automobile steering mechanism, F. E. Stadig  
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Aviation apparatus ..... C. N. Beal  
Bag-filling machine ..... O. Herrmann  
Bag-filling machine ..... T. W. Carey, Jr.  
Bag holder ..... B. F. Brown  
Bag holder ..... S. A. Ott  
Basin ..... E. F. Metzger  
Basket, Bottle ..... D. A. Wedmore  
Bath trap, waste, and overflow, Combina-  
tion ..... J. T. Harnett  
Baths, Apparatus for administering hydro-  
therapeutic ..... L. H. Pleins  
Bearing ..... H. L. Kutter  
Bearing, Counterbalanced, J. H. Van Deventer  
Bed, Collapsible couch, G. B. Nordgren  
Bed, Invalid ..... J. J. Bunnemeyer  
Bed rail ..... R. R. Thomas  
Bed-spring-supporting frame, M. Sleeth  
Beet toppler ..... C. W. Ford  
Bell, Cable-end (2 pats.), E. O. Sessions  
Bell-retaining device, J. B. Fensterwald et al.  
Belt shifter ..... G. C. Smith et al.  
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Boat-lanching apparatus, Ship's, T. B. Oliver  
Book holder ..... L. L'Heureux  
Book holder ..... W. H. Morey



- Date hook ..... A. F. Stuelke  
 Davit, Ship's ..... E. Ehlich  
 Dental engines, Wrist joint for ..... A. W. Schramm et al.  
 Dental instrument ..... W. W. Evans  
 Dental tape or floss ..... F. Z. Hanseom  
 Dish-washing machine ..... J. P. Charles  
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 Distribution system ..... J. H. Hall  
 Door-assembling machine ..... W. F. Ohlrau  
 Door check ..... J. W. Clement  
 Door, Collapsible revolving ..... G. A. K. Sutton  
 Door-controlling means ..... M. G. Voight  
 Door-controlling means, Adjustment for ..... H. G. Voight  
 Door, Folding ..... H. C. Schwemlein  
 Door, Grain ..... R. W. Burnett  
 Door hanger, Barn ..... P. Frantz  
 Door lock ..... W. B. Wykoff  
 Door-locking and controlling means, Double ..... H. G. Voight  
 Door operator and lock, Sliding ..... H. G. Voight  
 Doors, windows, &c., Fastening device for ..... A. H. Morton  
 Draft gear ..... J. F. Courson  
 Draft sill ..... G. H. Gilman  
 Drain, Land ..... W. W. Bonson  
 Draw-bar carry-iron ..... G. W. Rink  
 Drying apparatus ..... J. Pizzica  
 Drill ..... W. R. Down  
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 Drilling machine ..... C. H. Anderson  
 Drinking attachment ..... H. W. Taylor  
 Drinking fountain ..... P. C. Nielsen  
 Driving gear, Variable ..... A. R. Bannister et al.  
 Duplex-cylinder lock ..... J. H. Shaw  
 Duplicating machine ..... H. G. Liebenenthal  
 Dyeing apparatus ..... B. S. Summers  
 Dyes and making same, Vat ..... F. Singer  
 Elastic fabric ..... W. Kops  
 Elastic fabric or webbing (Reissue) ..... C. J. White  
 Electric apparatus, Vapor ..... P. C. Hewitt  
 Electric conductors, Swivel joint for ..... C. Twining  
 Electric-current brush structure ..... A. E. Berdon  
 Electric furnace (3 pats.) ..... W. N. Crafts  
 Electric furnace ..... A. E. Greene  
 Electric lighting system ..... H. Baluss  
 Electric switch ..... C. E. Campbell  
 Electrical connector (Reissue) ..... R. H. Welles  
 Electrical purification apparatus ..... R. W. Amos  
 Electrical testing battery ..... E. Marcuson  
 Electrode holder ..... G. Hills  
 Electromagnetic receiver ..... T. C. Coykendall  
 Electrolysis, Multiple needle holder for ..... E. K. Willison  
 Electromagnetic reciprocating motor ..... A. Le Blanc  
 Embroidery along an embroidered edge, Device for cutting ..... J. Wolter et al.  
 Engine cab, Locomotive ..... W. J. Goelz  
 Engine starter, Internal-combustion ..... L. Schwitzer  
 Engines, Auxiliary air-supply device for gasoline ..... J. L. Holton  
 Engines, Charging and distributing device for explosive ..... A. Auble, Jr.  
 Engines, Combined safety cranking device, clutch and pulley for explosive ..... L. Illmer, Jr.  
 Gas engine ..... L. Illmer, Jr.  
 Gas flame, Producing a retarded combustion of a ..... H. L. Doherty  
 Gas-flame spreader ..... E. R. Hodges  
 Gas generator, Acetylene ..... C. E. Wood et al.  
 Gas generator, Acetylene ..... J. L. Richardson  
 Gas generator and burner, Oil ..... A. C. Dale  
 Gas to increase its calorific value, Treating combustible metallurgical furnace ..... H. L. Doherty  
 Gas producers, Operating ..... H. L. Doherty  
 Gasoline, Making ..... E. W. Tait  
 Gearing, Multispeed-transmission ..... A. Burkhardt  
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 Glazing bar and the like ..... H. C. Lassam et al.  
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 Goffering press ..... A. Hentschel  
 Golf-flag support ..... D. Foulis  
 Governor control of steam engine valves ..... E. F. Williams  
 Grain blender ..... K. Dougan  
 Grease cup lock ..... R. O. Hughes  
 Grip ..... P. Filliez  
 Hair-dressing device ..... W. J. Parfrey  
 Hammer drill ..... A. J. Carter  
 Hammer, Rebouncing ..... G. S. Lewis  
 Handle or button ..... J. G. Peterson  
 Harrow ..... D. J. Farthing  
 Harvester ..... J. F. Appleby  
 Harvesting machine, Hay ..... C. A. Sunawalt  
 Hasp ..... P. Frantz  
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 Hat hanger ..... J. Mendelson  
 Hat pin (2 pats.) ..... A. B. Kokernot  
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 Hay and hog rack, Combination ..... J. E. Bright  
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 Headlight ..... O. F. Stifel  
 Heating furnace, Air ..... P. Hollenbeck  
 Heating water, air or other medium by means of a heat magazine, Apparatus for electrically ..... C. I. F. Hassler  
 Heel, Non-slipping ..... A. Aagaard  
 Hinge, Wind-shield (2 pats.) ..... C. H. Jockmus  
 Hoe or cultivator, Rotary ..... K. H. W. L. Seck  
 Holder ..... T. B. Kuezynski  
 Homogenizer ..... J. Willmann  
 Homogenizer ..... J. G. Becker  
 Hot water or steam, Apparatus for the supply of ..... W. B. D. Ponninghaus  
 Humidifier ..... G. A. Mayer  
 Ice-cream-cone machine ..... W. Bauckmann  
 Ignition strips, Machine for making ..... E. F. Koehler  
 Incinerator, Latrine (2 pats.) ..... E. C. Lewis  
 Incubator ..... H. J. Andersen  
 Index tag ..... G. H. Taylor  
 Indicator-actuating mechanism ..... O. E. Kellum  
 Ingot mold ..... W. R. Bossinger  
 Injector ..... S. L. Kneass  
 Ink well ..... J. W. Jacobus  
 Insulator ..... F. H. Martin  
 Insulator, Electric ..... J. D. Hilliard  
 Interleaving device ..... J. F. Jirousek et al.  
 Internal-combustion engine ..... M. H. Ames  
 Internal-combustion engine ..... A. A. Lazier  
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 Iron or steel for preventing oxidation or rusting, Treatment of ..... F. R. G. Richards  
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 Isoprene, Producing ..... R. B. Earle et al.  
 Jar holder, Fruit ..... G. H. Maas  
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 Journal-box-lubricating means ..... F. H. Hinkley et al.  
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 Key for safety locks, Variable combination ..... L. J. M. Dardeau  
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 Kitchen and ironing table, Combined ..... E. C. Prescott  
 Erasers, Machine for cleaning blackboard ..... G. E. Wilson  
 Excavating-machine dipper ..... W. S. McKee et al.  
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 Exhibiting apparatus or machine, Rug ..... J. Lutz et al.  
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 Eyeglasses, Earpiece for ..... E. V. White  
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 Fasteners, Machine for forming corrugated metal ..... E. S. Norton et al.  
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 Fastening-inserting machine ..... F. L. MacKenzie  
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 Faucet ..... F. P. Gillett  
 Faucet-coupling ..... H. E. Marcy  
 Faucet, Self-closing basin ..... A. M. Houser  
 Feeding device, Poultry ..... J. F. Haffey  
 Felting machine ..... G. Calvi  
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 Fence clamp ..... J. G. Russell  
 Fence post ..... R. W. Gray  
 Fence post ..... M. E. Johnson  
 Fence stretcher, Wire ..... W. A. Medlin  
 Fertilizer distributor ..... A. C. Wolf  
 Fiber tubes, Machine for making ..... C. Mehlum  
 File, Paper ..... J. Macdonald  
 Filing appliances, Spring clip for ..... E. B. Moseley  
 Filling machinery, Safety device for ..... A. M. Gaynor  
 Filter ..... W. G. Hall  
 Filter beds, Cleaning ..... W. A. Stevenson  
 Fire-door lock ..... H. G. Voight  
 Fire escape, Folding drop-step ..... C. H. Morand  
 Fire escape, Portable ..... E. D. Parker et al.  
 Fire-hose connection ..... W. E. Sanders  
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 Fireplace lining ..... G. B. Haggard  
 Floor-surfacing machine ..... H. J. Nelson et al.  
 Flush tank ..... J. Weis  
 Flying machine ..... A. M. Sipes  
 Flying machine ..... A. J. Snook  
 Flying machine and automobile, Combined ..... J. Gavura  
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 Fodder cutter ..... J. Dick  
 Forge ..... D. Mokry  
 Foundry apparatus ..... F. W. Lewis  
 Frame-adjusting mechanism ..... H. W. Hitzemann  
 Fruit gatherer ..... J. N. Sweeney  
 Fruit picker ..... L. S. Byrne  
 Furnace ..... G. L. Schuetz  
 Furnace arch, Locomotive ..... C. B. Moore  
 Furnace-feeding device, Roasting ..... H. H. Stout  
 Furnace-front arch, Locomotive ..... C. B. Moore  
 Furnaces, Smoke-consuming device for ..... C. W. Lupton  
 Furniture, &c., Buffer for ..... M. H. Thomas  
 Furniture-joint fastening ..... A. A. Anderson  
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 Game apparatus ..... D. H. Talbert  
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 Garment hanger and stretcher ..... G. H. W. Dooze  
 Garment presser ..... H. M. Svebilus  
 Garter ..... H. L. Carpenter  
 Garter, Pocket ..... M. J. Hamburger  
 Gas burner, Automatic ..... C. R. Clark  
 Knitted fabric, Ribbed ..... R. W. Scott  
 Knitting machine, Rib ..... R. W. Scott  
 Knot-staggering mechanism ..... H. D. Colman  
 Lamp ..... A. K. Miller  
 Lamp ..... E. J. Lutwyche  
 Lamp, Acetylene-gas ..... M. W. Moore  
 Lamp and generator, Acetylene ..... F. E. Baldwin  
 Lamp, Electric ..... F. H. Hart  
 Lamp holder ..... E. Kreidler  
 Lamp socket, Incandescent electric ..... H. F. Goetz  
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 Lamps, Arrangement of incandescent filaments in electric ..... O. Krause  
 Lantern, Tubular (5 pats.) ..... W. McArthur, Jr.  
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 Latch ..... W. H. Appleby  
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 Latch, Window ..... J. G. Stanecky  
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 Lens-grinding machine ..... A. A. Rousseau  
 Life-preserver ..... C. A. B. Hansen  
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 Lighting fixture ..... J. T. Robb  
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 Liquids from tanks or vessels, Device for controlling the delivery of ..... A. A. Quick et al.  
 Lock ..... A. Arens  
 Lock construction, Unit ..... H. G. Voight  
 Lock mechanism ..... C. S. Radford  
 Looms, Shipping and brake mechanism for ..... F. A. Whitmore  
 Looms, Machine for selecting, spooling, shearing and drawing in yarn for Axminster ..... T. P. Walsh  
 Lubricating block ..... T. R. Ferrall  
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 Lubricator ..... N. W. Cummins  
 Mail-bag catcher ..... L. Palmer  
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 Mail-bag delivering and receiving apparatus ..... E. G. Crossley  
 Mail-box indicator ..... S. B. Sargent  
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 Massage apparatus, Vibratory ..... J. Sabatino  
 Match machines, Splint-drying means for ..... J. C. Donnelly  
 Match-splint cleaning and polishing machine ..... J. P. Wright et al.  
 Match splints, Treating (3 pats.) ..... W. A. Fairburn  
 Match-striking surfaces, Material for ..... W. A. Fairburn  
 Mattress, Wire ..... F. M. Tinkham  
 Measuring instruments, Index needle or hand for use with electrical (2 pats.) ..... E. Weston  
 Measuring or controlling the frequency or wave length of alternating currents, Means for ..... G. Seibt  
 Measuring register, Liquid ..... C. P. Brown  
 Medicament-vaporizing apparatus ..... W. Reismaun  
 Medicine dropper ..... L. P. Savage  
 Merry-go-round ..... L. Blount  
 Metal tubes, Machine for hot-lacquering ..... R. L. Horrell  
 Meter wheel ..... C. W. Chisholm et al.  
 Microphone ..... G. A. Nussbaum  
 Milk can, Security ..... A. L. Liebel et al.  
 Milking machine (2 pats.) ..... J. L. Hulbert  
 Milking machine ..... J. Nielsen  
 Mine spider ..... B. Madera  
 Mold-making machine ..... H. R. Atwater  
 Molding machine ..... J. Allinsou  
 Mop head ..... C. T. Kubick  
 Mowing attachment for motor vehicles ..... O. Kluge  
 Mowing machine ..... J. Nicht  
 Mowing machine, Self-propelled ..... C. Shorman  
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 Nut lock ..... H. E. Faith  
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 Ores, Concentration of ..... O. J. Adams  
 Oven rack ..... E. S. Allen  
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 Paper drinking cup ..... W. E. Claussen  
 Paper holder, Toilet ..... S. J. Bens et al.  
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 Pedestal chair ..... P. P. Despins  
 Pen, Fountain ..... C. L. Aragon  
 Pens and the like, Stamp carrier for fountain ..... S. D. Watts  
 Petroleum or similar oils, Process of and apparatus for refining ..... M. J. Trumble  
 Photographures and apparatus therefor, Process of producing polychrome ..... J. Trau  
 Picture machines, Burner for stereoscopic and motion ..... F. W. Bell  
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 Plow ..... C. W. Michael  
 Plow, Reversible ..... H. Wiard et al.  
 Pole holes, Cover for sliding ..... W. J. Sweeney  
 Pole system ..... J. Ledwinka  
 Preserving food products, Organized apparatus for ..... J. M. Young  
 Presser foot ..... C. Wiczorek  
 Pressing and gluing machine ..... J. N. Lilygren  
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 Printing forms, Producing planographic ..... G. R. Cornwall  
 Printing plate ..... G. R. Cornwall  
 Printing press (2 pats.) ..... E. O. Cartwright  
 Printing press, Flat-bed rotary ..... H. B. Cooley  
 Printing stamp, Band ..... C. S. Ellis  
 Printing surface, Planographic ..... G. R. Cornwall  
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 Pump ..... C. L. Page  
 Pump ..... R. K. Miner  
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 Pump, Automatic vacuum ..... W. H. Drummond  
 Pump, Force ..... W. J. Williams et al.  
 Puzzle or game apparatus ..... A. E. Derbyshire  
 Rail-drilling means ..... M. Reedy  
 Rail joint ..... H. Broberg  
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 Rail joint ..... A. P. Gagatsek  
 Rail tie ..... W. C. Berrien  
 Railway draft rigging (2 pats.) ..... J. F. O'Connor  
 Railway, Pleasure (4 pats.) ..... L. A. Thompson  
 Railway-rail fastening ..... C. H. Batson  
 Railway-rail spike ..... J. Kruttschnitt  
 Railway service, Bumper post for ..... J. F. O'Connor  
 Railway signaling system ..... J. S. Hobson et al.  
 Railway-switch mechanism ..... M. L. Shepherd  
 Railway-switch mechanism ..... M. L. Shepherd  
 Railway tie ..... F. F. Green  
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 Railway tie, Metallic ..... V. G. Tornquest  
 Range cleaner ..... N. T. Wheeler  
 Range and stove, Cooking ..... J. J. Cartwright  
 Range, Gas ..... J. A. Alexander et al.  
 Ratchet drill ..... E. C. McMillan  
 Razor-blade-honing apparatus ..... C. G. Marechal  
 Razor, Safety ..... T. A. Bell  
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 Reed ..... W. Wagner  
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 Resilient wheel ..... J. G. Peck  
 Road-building machine ..... E. F. Stevens et al.  
 Roadways, Machine for consolidating the road metal in the construction and maintenance of metalled ..... K. Content et al.  
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 Rope clamp ..... R. E. Gruber  
 Rotary engine (2 pats.) ..... J. H. Van Deventer  
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 Rule and pencil holder ..... E. Knauf  
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 Sand-mold-forming apparatus ..... E. Roncney  
 Sash fastener, Storm ..... J. C. Clapp, Jr.  
 Saw clamp ..... M. Wagner  
 Saw swage ..... H. A. Fruin  
 Saws, Tension device for band ..... M. T. Wertenbaker  
 Scaffold or shelf, Window ..... F. J. Brown  
 Scale attachment ..... F. D. Shea  
 Score board, Baseball ..... G. S. Coleman  
 Scraper, Road home ..... L. C. Averell  
 Screen or sieve ..... F. Mayn  
 Screw, Self-locking ..... F. P. Haines  
 Sealing device, Car-door ..... J. F. O'Connor  
 Sealing machine, Paper bottle ..... F. N. and W. C. Weiss  
 Seed separator ..... P. E. Long et al.  
 Seine-pursing device ..... E. Curot  
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 Sewing machine cut-off attachment for tapes ..... F. S. Jennings  
 Sewing machine finger protector ..... M. Mashbir  
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 Shaft flexible coupling ..... G. V. Curtis  
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 Shoes, Machine for operating on ..... F. H. Perry  
 Shutter or blind, Louver ..... A. A. Perrier  
 Sifter, Ash ..... W. M. Salisbury  
 Signaling device ..... G. Fortmann  
 Signaling device ..... L. Abeles  
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 Signs, &c., Mechanism for producing gas-lighted flash ..... T. Jackson  
 Sink and laundry tray, Combined ..... H. B. Hiteshew  
 Skate ..... C. A. Nordling  
 Skate, Roller ..... J. E. McAllister  
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 Sound-reproducing machine ..... W. J. Hughes  
 Spark extinguisher, Locomotive ..... J. Player  
 Sparking plug ..... I. Koutkine  
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 Spinning apparatus, Yarn ..... A. E. Rhoades  
 Spinning frames, Means for attaching doffer-supporting rails to ..... B. A. Peterson  
 Spinning or twisting machines, Thread guide for ..... L. T. Houghton  
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 Spring wheel ..... W. S. Allyn  
 Spring wheel ..... J. E. Fisher et al.  
 Stacker, Foldable hay ..... A. F. Kea  
 Stamp and label-affixing device ..... J. J. McDade  
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 Stove attachment ..... J. M. Cornyn  
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 Straightening machine ..... P. M. Haas  
 Strainer, Milk ..... F. J. Brayton  
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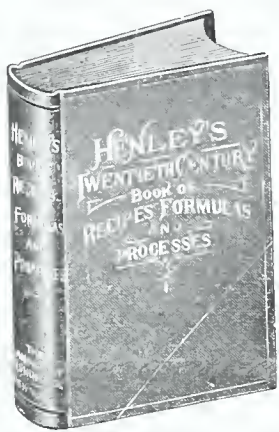


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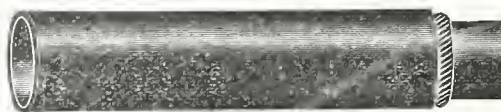
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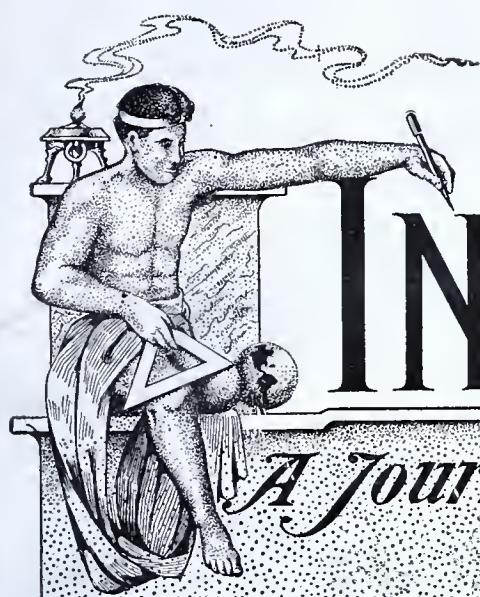
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## OXY-CARBI FUSION WELDING PROCESSE.

By FRANK C. PERKINS.

ONE of the greatest developments of the century for repairing machinery and reclaiming cracked or broken castings is the use of oxygen gas with acetylene or hydrogen for the perfect fusion or uniting of metals by heat without either flux or compression, a temperature of 6300 degrees F. being obtained, or the same as that of the electric arc. The oxy-carbi process is of the greatest value in the mechanical world, as it does away with the old method of riveting and brazing in iron and steel. Cast iron, aluminum, brass, copper, platinum and other metals can be perfectly united.

It is claimed that so many different metals can be welded that the percentage of loss on broken machinery in any form is very small. In many cases different metals may be amalgamated, as copper to cast steel or brass, and steel and iron to cast iron or malleable iron as well as to the different bronzes.

The accompanying illustration, Fig. 1, shows an extraordinary example of welding effected by the oxy-carbi torch. On large work of this size, the continuous generation machines are of the greatest value. This piece of work required more than 200 pounds of carbide and 1200 cubic feet of oxygen, and took ten hours to complete. A safe frame, measuring 2½ feet by 2½ feet by ½ foot, was cut, bent and welded by one man in one hour.

In repairing engine parts this process is one of the greatest importance, as will be noted by illustrations Figs. 2 and 3, showing a crank case which was restored after having been broken into a number of pieces. It will be seen that the ten pieces of scrap of this badly fractured cast iron crank case were welded together without difficulty, reclaiming it and making it as valuable and serviceable as the original.

The oxy-carbi triple retort generator for making oxygen gas under pressure is shown in Fig. 4 as con-



FIG. 1.—WELDING DONE BY OXY-CARBI TORCH.

structed at New Haven, Connecticut. By placing a pan of chemicals in one of these retorts and lighting the gas burners beneath, oxygen is given off and passes through the purifiers into

the storage tanks. The chemicals which are used are potassium chlorate and manganese dioxide. When large quantities of oxygen are required, the retorts may be changed alternately as

fast as cooled. The special feature of the double gauge arrangement shown is that it can be determined at any moment if the retort in use has exhausted its oxygen. By closing the inlet valve on the tank, the movement of the gauge is made to indicate the condition of the retort, thus saving much time.

It will be seen that by using a series of generators, one can be generating gas, while the next one is cooling off from its former charge, and a third one is having the old charge cleaned out and being refilled with the new one. As many of these generators can, of course, be used as are needed to keep the volume of gas going into the storage tank equal to that which is being drawn out by the torches for the welding or cutting of metals.

For service, where the compressed oxygen supply is convenient and desired, high or low pressure cylinders are used. A more elaborate apparatus for generating through a system of purifiers into a gasometer, at no appreciable pressure, is often employed. The gas is compressed with a special two stage compressor into the storage tank. This apparatus has a greater first cost, but is valuable in the end as it produces gas at the lowest possible cost from this source.

The proper generation of the acetylene gas, under pressure suitable for welding, is of great importance. The principal drawback has been the improper slacking of the carbide, which causes it to heat even to the point of ignition in the generator. This is overcome in the process of cool generation described below.

The hydraulic pressure stationary plant for the continuous generation of acetylene is a uniform pressure generator; the pressure being maintained by weight of water in the standpipe. By alternating the charges in the carbide holder it is continuous in generation. One holder may be cleaned and recharged at any time while the other is



in use, and opening the two valves to the filled holder is all that is necessary to start it working.

As soon as the consumption of gas ceases, it stops generation. It wastes no gas from the safety, because before this can occur the water has been so far removed from the carbide, that no gas generates. Cleaning and recharging is the work of but a few



Fig. 1.—Crank Case Broken in Pieces.

minutes, without the necessity of handling trays or pans. Opening the large gate valve in the bottom of the apparatus allows the sludge to empty in the sewer or catch basin, and a

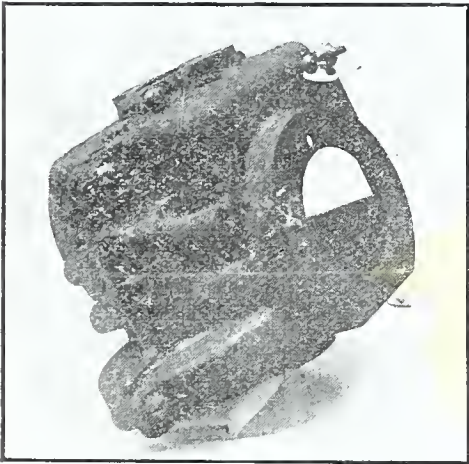


Fig. 3—Crank Case Restored by Fusion Process.

little flushing with the hose cleans the bolder. Fill again with carbide, clamp on your cover and the holder is ready

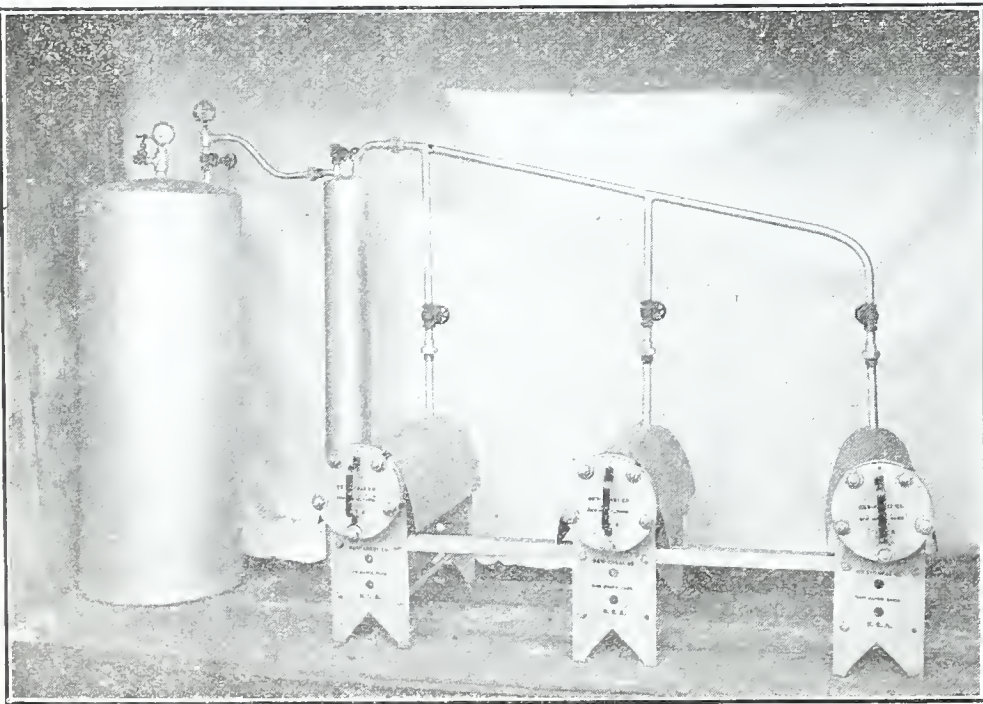


FIG. 4.—OXY-CARBI TRIPLE RETORT OXYGEN GAS GENERATOR.

for use as soon as the other exhausted cover and holder are ready.

A special variable pressure generator has been designed which may be set at any pressure desired, from 1 to

15 pounds, and the pressure is maintained by a connection with a water supply from some source. This apparatus is built with one, two and four carbide holders, the double and quadruple holders being continuous. It is exceedingly simply and entirely automatic. It may run indefinitely without the largest size of blowpipes, using 200 pounds of carbide in ten hours, without overheating or clogging, or causing any delay to the operator. Generation is governed by consumption. When consumption ceases, generation ceases, and there is no waste from after generation.

The most important part of an oxy-acetylene welding and cutting machine is said to be the torch. The torch or blowpipe is constructed so as to mix and at the same time preserve an absolute neutral flame through the most trying conditions. Frequent adjustment of the flame for any reason causes the metal to warp, thus making a smooth seam impossible.

The matter of contact mixture is perfectly regulated in this oxy-carbi torch. A number of nozzles are supplied having different sized central holes, delivering the proper sized flame for different thicknesses of metal. The acetylene inlet is constructed so as to eliminate the possibility of flashback. Preventers are placed in the acetylene pipe, utterly preventing any flame passing farther than the mixing chamber, should this in any way occur. By removing this welding tip and inserting the auxiliary nipple and screwing on the cutting pipe with great power of penetration.

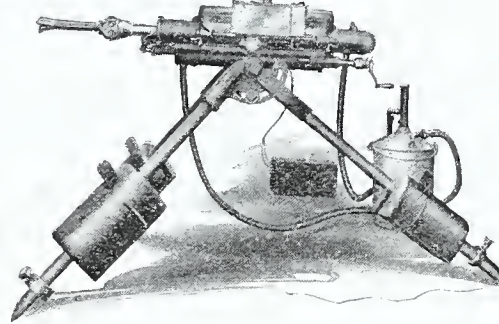
Too much oxygen always burns the metal, and too much acetylene carbonates, crystalizes and weakens the

same. The torch must produce flame positively neutral, from a supply of gas under perfect control accurately measured, and of proper pressure at the tip.

## RICE GASOLINE ROCK DRILL.

The field of air and steam rock drilling has been invaded by a drill using gasoline as the agency of motive force, upon principles new to all prior efforts in the gasoline drill development. It is an entirely self-contained drilling unit, consisting only of the drill and tripod, and requires no other equipment, which particularly recommends it for use in contracting, mining, prospecting, tunneling, trenching, railroad construction, subway work, etc.

John V. Rice, Jr. of Philadelphia, is the inventor, and it is the outcome of his many years of association with the rock drill industry.



The drill has a full floating, free piston action. The piston rod, pistons and bit are all connected together, forming a direct striking piece, acting and striking the rock in the same manner as the air and steam drills of to-day. Little difference in appearance can be noted between this drill and the standard air or steam drills, excepting the noticeable absence of the usual auxiliary equipment of steam boilers, air compressors and piping necessary to them.

The motive force of this gasoline drill is furnished by two cylinders opposed to each other. A piston rod, fitted with a piston for each cylinder and on the end of which is the bit chuck, continues through the two cylinders. A make and break spark plug for each cylinder is tripped and fired by each piston alternately. The firing of the rear cylinder drives the piston and bit forward, hitting the rock directly with all the force of an explosion of gasoline. The front cylinder then fires and the piston is sent back to its first position, again with the full force of an explosion, lifting the bit with extraordinary power. This operation continues indefinitely.

The pulsator is of the two-cycle design (no valves used) and fired at each stroke of the piston. The cylinders are water cooled under the control of a self-contained pump operating simultaneously with the drill. The fuel and oil container is attached to the side of the drill and is adjustable with respect to the angle at which the drill is set. When running, the lubrication of the working parts is automatic. The oil is fed into the gasoline drill and the cylinders, pistons and bearings receive the amount necessary.

The drill strikes 600 blows a minute with a bit 24 feet long and drills a hole from 1½ inches to 2¾ inches in diameter at any angle. The cutting speed is under the control of the operator but when running at full speed the drilling is as rapid as with air or steam drills of equal cylinder size and weight. It operates for ten hours on less than

three gallons of gasoline, when drilling continuously at the highest speed.

The cost of daily operation is estimated at \$3.50 for drill runner, \$2.50 drill helper, 75 cents for gasoline and 10 cents for lubrication, a total of \$6.85.

In 1905 Mr. Rice developed and patented a gasoline drill of the flywheel type, which was known as the "Bull Dog." The bit of this device remaining stationary in the hole of the rock was hit a hammer blow by the piston of the motor. This type of drill was very satisfactory in its cutting speed, but the impact crystalized the crank shaft and thus caused it shortly to break. As this was an unsurmountable difficulty the drill was abandoned.

Mr. Rice has been delayed some years in the manufacture of his free piston drill which, he claims, is the only free piston gasoline drill in the world and involves a number of patents which he has secured. Shortly after its development an interference suit over the patents was brought against him. A legal contest followed, causing the loss of much time and expense, but resulting in the Court of Appeals of the District of Columbia fully substantiating the Rice claims. Mr. Rice, however, took advantage of the delay necessitated by these proceedings and thoroughly tested his drills under many difficult conditions and in all kinds of work. One test involved a six months' continuous run in competition with air and steam drills which were on the same work, resulting in much credit to the Rice drill. At times during this run, which was in the winter, the temperature was as low as five degrees above zero, but the gasoline drill did not lose a day.

Mr. Rice is the president of the Rice Gasoline Rock Drill Company, which has its principal office in Philadelphia and factory located in Elizabeth, N. J., where every effort is being made to meet the demand for his drills.

## The Ship's Compass.

It is a curious fact that the steel hull of a vessel is rendered magnetic during construction by the hammering of the metal, and that every steel vessel should, therefore, have its compass corrected to counteract its own magnetic lines of force.

The magnetic influence is further complicated by the load carried by the vessel, if this load is magnetic or capable of being magnetized. The ore-carrying vessels of the Great Lakes experience great difficulties on this account, and for some time hydrographic authorities have been endeavoring to teach pilots and captains of vessels plying in this trade how to check their course by means of the pelorus.

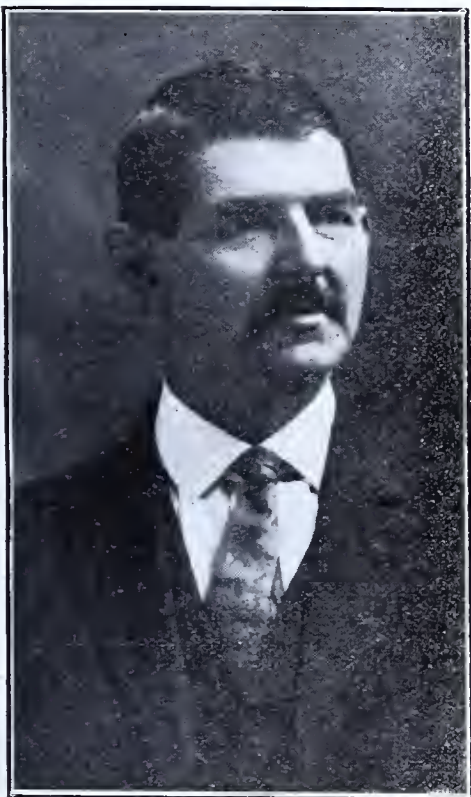
The pelorus is an instrument similar to the sundial, being provided with a gnomon and a graduated arc on which a shadow of the gnomon is cast. The instrument is set in a north and south direction, as indicated by the compass, and then, by noting the shadow on the graduated arc, it is possible to tell by comparison with tables just how far from the north and south position the gnomon really lies, thus showing the compass error.



## CHARLES W. McWANE. AN INVENTOR OF NOTE.

A BOLTLESS PLOW.

As the name McCormick is connected with the reaper and Edison with the talking machine, so is the name McWane associated with the plow. And this is not due to the efforts of a single inventor or the success of a single manufacturer. All the McWane family are interested in plows, and has been for more than one generation. C. P. McWane, now eighty-one years of age, started a foundry to make plows, etc. which was one of the earliest industries of this character in the South. His sons have followed in his footsteps. Charles McWane has invented a self-sharpening plow point, and also a boltless plow, with which this article deals. Henry E. McWane is president of the Lynchburg Foundry Company, with a capital of over three-fourths of a million dollars, and James R. McWane is vice president and treasurer of the American Cast Iron Pipe Company, of Birmingham, Ala.



CHARLES W. McWANE.

Charles W. McWane was born in Wytheville, Va., May 19, 1867, of Scotch-Irish parentage. He was brought up in the foundry, so to speak, not only doing odd jobs there but spending his play time within its walls. His father designed the plows he manufactured, and it was only natural that Charles should have inherited this talent as well as inclination for the industry. When but a youth he took an active interest in designing, and this early training developed into a love for it that has enabled him to attain the great success which has come to him as an inventor in the past few years.

Mr. McWane became identified with the Lynchburg Plow Works in 1896, and has since been an active factor in its development. For more than a quarter of a century his energies have been devoted to plow designing, and

the result of his work has been nine patents, with two applications pending, one for a permanent mold. His best work has been in the concave self-sharpening plow point, and the boltless plow, which are destined to be of great value to the farming interests of our country.

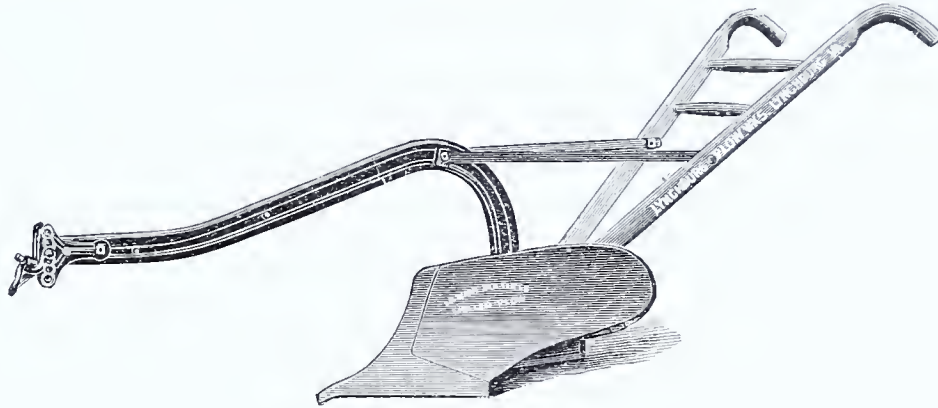


FIG. 1.

The boltless plow is illustrated in the accompanying cuts. Figure 1 is a perspective view showing the complete plow ready for use. Figure 2 a front view with the handles cut off. Figure 3 is a side view from the landside side of the plow. Figure 4 is a rear end view showing the attachment of the handles to the plow.

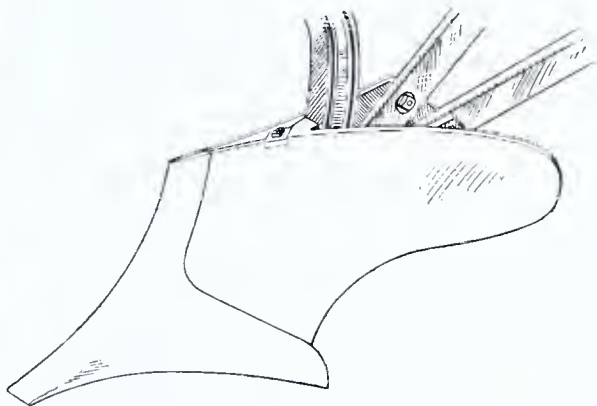


FIG. 2.

Many attempts have been made in the past to produce a plow in which no bolt hole will show on the face of the landside, moldboard or plow point. The objection to perforating these parts is well known. It has been found after many years experience that these parts of a plow always break at the bolt hole, showing that it is an element of great weakness.

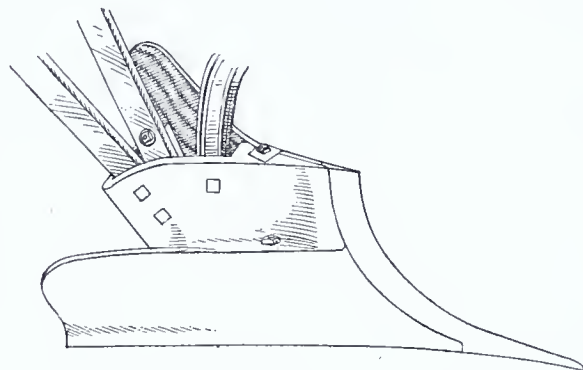


FIG. 3.

In the construction of the invention, Mr. McWane has proceeded along simple, practical and thoroughly effective lines.

First, as to the plow point. The plow point is of the usual conformation, consisting of a nose, blade and

shin. The rear side of the plow point is provided with longitudinal flanges, said flanges being angularly related to each other so as to form a tapered recess on the underside of the plow point, the flanges being undercut. The standard is formed with a tapered foot, with its edges beveled to slide in and engage the beveled flanges. The foot of the standard is formed with a recess which opens out at the upper face, and there is a bolt opening extending from the recess rearwardly through the foot. On the underside of the point between the flanges, a de-

pending lug is provided which fits in the recess of the standard, and a bolt is arranged with its shank extending through the bolt hole of the standard, and is provided with a nut to engage with the lug within the recess thereof. By turning the bolt in one direction, the lug is retained firmly within the recess, and locks the point in place, while turning the bolt in the opposite direction enables the plow point to be detached. It is not necessary to entirely withdraw the bolt from the nut to accomplish this result, and because of this fact, the bolt and nut remain always in place and can never become misplaced or lost. The secret of the attachment of the point to the standard is that while a bolt is provided for connecting the plowpoint to the standard, the bolt is not visible, and not a blemish in the shape of a hole appears on the face of the plow point.

In the patent on the boltless moldboard and landside, the same close and careful attention to details is shown in the construction of this invention. In order to fasten the landside in place, the landside has its upper edge interlocked with the foot of the standard, and a single, vertical bolt is located at the inner face of the standard and connected with a lug provided on the landside.

In fastening the moldboard in place, there is provided in the foot of the standard an opening forming a socket, and the moldboard has at its lower end an integral lug projecting into said socket. At the top of the standard, a single vertical bolt is provided to hold in place a cap plate which engages with the upper edge of the moldboard, said cap plate holding the moldboard against upward movement. By this means, there are two connections between the moldboard and the standard, one connection at the bottom, consisting of a lug fitting

in a socket, which is an interlocking connection without fastening means and which is disconnected by an upward and outward movement of the moldboard, and a second connection between the moldboard and the standard, said second connection being arranged above and in the rear of the first-named connection and serving to hold the lower connection of said parts in fixed relation.

By this construction, it requires one bolt to fasten the plow point to the standard, one bolt to fasten the moldboard to the standard, and one bolt to fasten the landside to the standard. All three of these bolts are readily accessible at all times and placed in positions where they cannot become worn, no bolt holes being provided in any of these parts.

The attachment of the handles to the standard is also a matter of invention, but it is a minor feature and need not be dwelt upon. It will be noted, however, that in connecting the handles in position, there are no bolt holes provided in either the moldboard, the landside or the plow point.

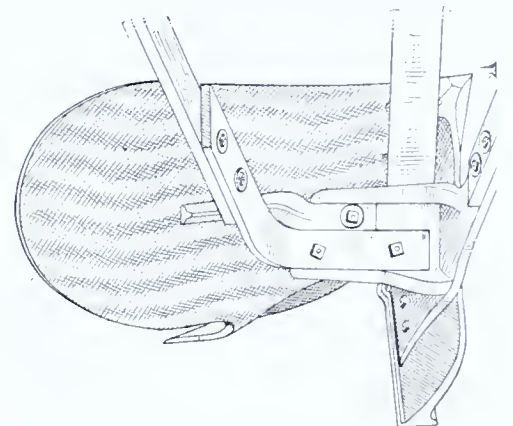


FIG. 4.

The two patents which have been issued on this plow are very broad and comprehensive, and they fully cover the inventions. Indeed, the patents can very properly be regarded as basic. They have been assigned to the Lynchburg Foundry Company, of Lynchburg, Va. The company did not wait for the issuance of the patents to exploit these inventions, but has had the plows on the market for some time, and their success has been most marked. Indeed, it has been difficult for the Lynchburg Foundry Company to fill its orders.

It is not too much to prophesy that these inventions of Mr. McWane are destined to be of great benefit to agriculture and may properly be said to be epoch-making in their bearing on the future of the industry.

### Thawing Ground by Lime.

The heat generated in the process of slaking lime has been put to practical use in the West, to thaw frozen earth. Sewer trenches were being dug in Iowa during last winter, when a sudden period of cold weather caused the ground to freeze to a depth of several feet, and seriously interrupted the work. An effort was made to break it with the trenching machine, but in vain. Then quick lime was broken up into small pieces, spread the width of the trench to be opened, and covered with straw and hay. Water was poured upon it, and the covering serving to retain the heat, the ground was thawed sufficiently to enable the trenching machine to make headway.



## CLEVER NEW PATENTS.

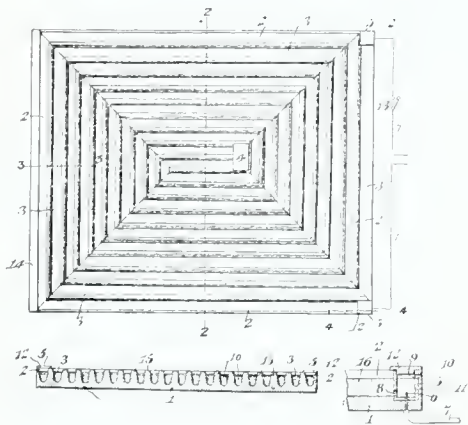
Electrocuting Flies.--Pneumatic Attachment for Ink Receptacles.--Letter Opener.

### Electrocuting Flies.

The old nursery rhyme about

"Baby bye here's a fly  
You can catch it, you and I"

which was suggestive of the supposed harmlessness of the house fly, has given way to the slogan "swat the fly." Fly killing campaigns have been instituted in different sections of the country, and inventors have taken up the problem with fly traps, fly paper holders and other devices and seem determined to solve it. One of the best things we have seen along this line is the invention of Frank Doney, of Colfax, Washington. One half interest has been assigned to William T. Smith, of the same place.



In accordance with the present invention, a plate, preferably made of glass or porcelain, is provided having in its upper surface grooves or channels 2 and 3, respectively. These channels begin at the corners of the plate and are continued about the same side by side, gradually approaching the center so that practically the whole surface of the plate is taken up by the grooves. The inner ends of the grooves may be defined by block 4 seated in the body of the plate. At the outer end of each groove a cup 5 is lodged in the plate, and this cup is entered by the terminal portion 6 of an electric conductor 7. Formed through one wall of the cup is a passage 8, which when the cup is seated in the plate coincides substantially with the bottom of the grooves 2 or 3 as the case may be. Through the opposite wall of the cup is a passage 9 to determine the level to which the liquid will rise in the grooves. The cup, which is formed of insulating material, is provided with a cap 12, which will prevent accidental contact with the terminal of the conductor. Two conductors are provided, together with a switch 13, so that the device may be placed in circuit with a suitable source of electric energy, or cut off therefrom at the will of the operator.

When it is desired to put the device in operation, water is poured anywhere upon the plate and rapidly finds its way throughout the channels 2 and 3, which are separated by intermediate walls 15. As the water seeks its level,

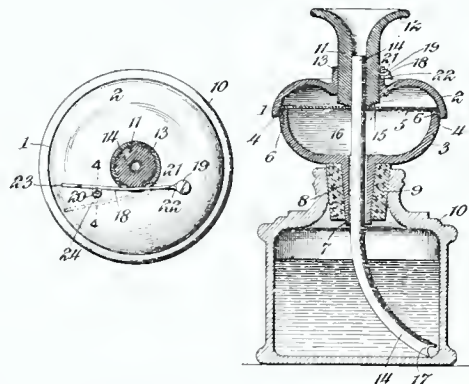
it will flow into cups 5 through the openings 8 until it overflows through the openings 9. By sweetening the water it is made attractive to flies, which finding a place upon the exposed edges of the walls 15, which are about one-sixteenth of an inch above the level of the water, will endeavor to drink the sweetened water. The narrowness of the exposed edges of the walls will practically in all cases cause the flies to touch the water in the channels at opposite sides of the particular ledge upon which they alight. When a fly simultaneously touches the water in the adjacent channels a circuit is completed, and the electric current traversing the body of the fly is sufficient to instantly kill the insect, which under the shock will in most instances fall into the channel between two walls.

When there is an accumulation of dead flies in the channels, they are readily removed by brushing them towards the edge 14, over which the bodies of the flies are readily pushed and may be collected and carried away to some place of disposal.

### Pneumatic Attachment for Ink Receptacles.

Handling ink is one of the most disagreeable of duties, as it is so difficult to keep the fingers clean in the process. A method of refilling ink wells by a pneumatic attachment that can be transferred from one bottle to another, has been patented by Henry T. Emeis, of San Diego, Cal. By this device any ink well or bottle may be connected with an automatic pneumatic ink well. The casing 1, as shown in the large view, is divided into sections 2, 3, fitted together and holding between them the margin of a flexible diaphragm 5, consisting of rubber. The exterior of the section 3 is provided with a recess 6 to receive the margin of the diaphragm, which can be detached from between the sections when desired. Depending from the lower section is a tapered tube 7, fitting in a stopper of an ink bottle, and adapted, as may be readily seen, to be transferred from one bottle to another. The tapered tube enables it to fit tightly within the opening of the stopper which fits against the bottom of the lower section 3. The upper section 2 is provided at the depressed center with an opening for the shank of a cup 12, and also has a flange which surrounds said shank. The cup is tapered, and its shank 11 is tubular and receives in its bore the upper end of a flexible tube 14, extending downwardly through the center of the diaphragm 5 and through the tapered tube 7 to the bottom of the ink receptacle 10. The lower end 15 of the shank is tapered and helps to hermetically seal the chamber 16, formed by the diaphragm and the lower section. The lower end 17 of the tube 14 is cut away to prevent its being closed by contact with the bottom. When the cup 12 is depressed the diaphragm is forced down, compressing the air in

the chamber and forcing the ink up into the cup. The cup can be locked in this position to prevent the ink flowing back into the bottle by the locking device shown in the small figure to the left. When the ink is consumed, the elasticity of the diaphragm

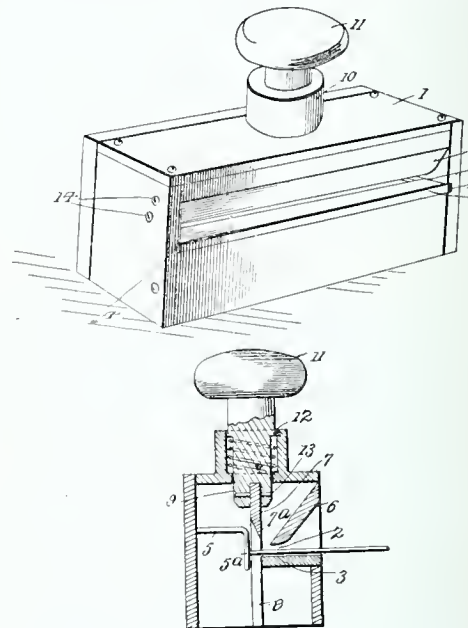


raises it, creating a partial vacuum and causing air from without to flow through the ink into said chamber. The locking device consists of a spring 18 on the top section, having one end engaged detachably with a lug 20. The middle part operates in a slot in the annular flange. When the spring is engaged with the lug, it is flexed and frictionally engages the tubular shank of the cup, holding the same against vertical movement in the upper section. When the ink well is empty, it may be refilled by withdrawing the tapered tube 7 of the lower section of the casing from the stopper of the ink well, and the device may then be used as an ordinary funnel, and ink poured into the tapered or funnel-shaped cup will flow through the flexible rubber tube into the ink well. After the latter is filled, the tapered tube of the lower section of the casing is replaced in the opening of the stopper, and the device is ready for use.

### Letter Opener.

There are numberless appliances for lessening labor and facilitating work in offices, and among the most ingenious of recent ones is a device for opening letters. Every business man knows what a tedious process this is, when the mail is large. The present invention, which is made by Frank E. Mason, of Stroud, Okla., consists of a

casing having an opening 2 on the side, and a shelf 3 being located at the bottom of this opening. Inclined downwardly in the opening is a guide 6 (see the lower figure in the illustration) which co-operates with the shelf 3 to form a mouth for receiving the envelop. To open the latter, one end is thrust into the mouth until its edge engages the arms 5 which act as stops for the envelop. The portion of the latter projecting beyond the inner edge of the shelf is then cut by a blade 7 which reciprocates between the shelf and the stops 5. The ends of the blade work in vertical grooves in the ends of the casing, and the middle portion is secured to a plunger mounted in the top. The upper part of the plunger is enlarged and operates in a boss pro-



jecting up from the casing, a spring fitting between the top of the casing and the shoulder at the end of the enlarged upper end of the plunger and holding the blade normally elevated. By pressing the knob on the top of the plunger the spring is compressed and the blade moved down. The plunger is screwed in, and may be removed for sharpening. The cutting edge of the blade may be inclined so as to obtain a draw cut. It is readily seen that the appliance can be used for trimming paper or similar operations, as well as for a letter opener.

# PATENTS

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## LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

### MANHATTAN BOOK CASING MACH. CO. v. E. C. FULLER CO.

(Circuit Court of Appeals, Second Circuit. March 10, 1913. 204 F. R. p. 286.)

#### PATENTS—VALIDITY—INOPERATIVENESS—BOOKBINDING MACHINE.

The McClellan patent, No. 603,406, for a bookbinding machine, held void, because its disclosures do not teach those practicing the art how to make an operable machine.

### E. H. FREEMAN ELECTRIC CO. v. JOHNS-PRATT CO.

(Circuit Court of Appeals, Third Circuit. April 25, 1913. Rehearing Denied May 26, 1913. 204 F. R. p. 288.)

#### 1. PATENTS—INVENTION—COMBINATION OF OLD ELEMENTS

Each and every separate element of a combination may be old, and yet the combination as a whole may show patentable novelty and invention, if the several elements so coact as to produce a result which is either new in itself, or by means of such coaction is produced in a novel or improved way.

#### 2. PATENTS—ANTICIPATION—PRIOR ART.

A patent is not in the prior art with respect to another which at the time of its issuance is pending on application in the Patent Office.

#### 3. PATENTS—VALIDITY AND INFRINGEMENT—ELECTRIC FUSE.

The Sachs patent, No. 660,341, for a safety fuse, consisting of a combination of elements, the most important of which is a thin, flat, safety strip of rapidly oxidizing metal, of extended area, and maximum contact with the nonconducting filling in the case, was not anticipated, and disclosed patentable novelty and invention; also held infringed.

### W. A. GAINES & CO. v. TURNER-LOOKER CO.

(Circuit Court of Appeals, Sixth Circuit. March 7, 1913. On Petition for Rehearing, May 8, 1913. 204 F. R. p. 553.)

#### 1. TRADE-MARKS AND TRADE-NAMES—VALIDITY OF TRADE-MARK—FALSE STATEMENT FOR REGISTRATION.

A trade-mark, consisting of a word registered on a statement that it had been continuously used as a trade-mark by the applicant and its predecessors in business since a date more than 35 years previously, is not invalidated by the fact that during a part of that time the word was used as a part of a more extended trade-mark.

#### 2. TRADE-MARKS AND TRADE-NAMES—INFRINGEMENT—IMITATION OF NAME.

Complainant and its predecessors for many years have sold a brand of whisky in bottles bearing a label with the trade-name "Hermitage" printed conspicuously thereon in large script, and under such name the whisky has acquired a wide and favorable reputation. Defendant commenced the sale of a different and cheaper brand of whisky in bottles having the name "Golden Heritage" on labels; the word "Heritage" being printed in large script closely similar to complainant's, while the word "Golden" was in much smaller script in an oblique position. Held, that there was such similarity between the two labels as was calculated to deceive the public, and as to constitute an infringement of complainant's trade-mark.

#### 3. TRADE-MARKS AND TRADE-NAMES—"INFRINGEMENT"—EVIDENCE TO ESTABLISH.

To constitute an "infringement" of trade-mark that will entitle the owner to relief by injunction, it is not necessary that wilful intent to deceive be shown; but it will be presumed that defendant intended the natural consequences of its acts, and where it has put its goods on the market under a name so nearly like complainant's as to enable dealers to palm them off as complainant's, and at a price which makes it an object to do so, an invasion of complainant's rights is shown.

#### 4. TRADE-MARKS AND TRADE-NAMES—RIGHT TO PROTECTION—FRAUDULENT REPRESENTATIONS ON LABEL—"PURITY" OF WHISKY.

A statement on the label of whisky bottled

in bond that its "purity" was guaranteed by the United States government, while not technically true, was not such a fraudulent misrepresentation as should bar the distiller from relief in equity against infringement of its trade-mark, since the stamp may be taken as a guaranty that it is such as is permitted to be bottled by the statute, that it has not been subjected to adulteration or admixture, but is in the same condition as when manufactured, except for the process of aging and reduction to 100 proof, and in such condition it may be considered pure for bottling purposes.

#### 5. TRADE-MARKS AND TRADE-NAMES—INFRINGEMENT—RIGHT TO RELIEF—FALSE REPRESENTATIONS ON LABEL.

Untrue statements on labels that the whisky contained in the bottles was manufactured "in the sour mash fire copper way, being singled and doubled in copper stills over open wood fires," and untrue or misleading statements on labels on "bonded" whisky that "this bottling in bond \* \* \* insures to the customer the highest grade of whisky made in this country," are material and misleading representations which under the rule of "unclean hands" deprive the distiller of the right to relief in equity against infringement of its trade-mark used on such labels, until such practice is discontinued.

### NEW YORK TIMES CO. v. SUN PRINTING & PUBLISHING ASSOCIATION.

(Circuit Court of Appeals, Second Circuit. April 14, 1913. 204 F. R. p. 586.)

#### COPYRIGHTS—ESTABLISHMENT—FILING COPIES—INFRINGEMENT—SUIT—CONDITION PRECEDENT—"MAINTAIN."

Act March 4, 1909, c 320, 35 Stat. 1075 (U. S. Comp. St. Supp. 1911, p. 1472), providing that no action or proceeding shall be maintained for infringement of a copyright of any book until two complete copies have been deposited in the Copyright Office, or in the mails, addressed to the Registrar of Copyrights, is not limited to an action or proceeding for infringement, but applies as well to a suit in equity for an injunction to prevent the infringement or violation of complainant's copyright, and for an accounting, precluding the lawful commencement of a suit for that purpose prior to deposit of copies; the word "maintain" including the commencement of such suit.

### WRIGHT CO. v. HERRING-CURTISS CO. et al.

(District Court, W. D. New York. Feb. 21, 1913. 204 F. R. p. 597.)

#### 1. PATENTS—VALIDITY AND INFRINGEMENT—FLYING MACHINE.

The Wright patent, No. 821,393, for a flying machine, is for a combination which was not anticipated, and by the means shown of securing the equilibrium of the planes made an important advance in an embryonic art. If not strictly for a pioneer invention, in the sense of producing an apparatus novel in its entirety, in such means it surpassed anything in the prior art, and is entitled to a liberal construction. Claims 3, 7, 14, and 15 also held infringed by the Curtiss aeroplane.

#### 2. PATENTS—SUIT FOR INFRINGEMENT—DEFENSES—PRIOR STRUCTURES.

An invention or discovery set up in defense of infringement must have been complete and capable of producing the desired result.

#### 3. PATENTS—CONSTRUCTION AND VALIDITY OF CLAIMS—SUBCOMBINATION.

It is not essential to the validity of a claim of a patent that all parts of the machine, or all parts specified in other claims, which are necessary to its operativeness, should be included therein; but where the patent is for a combination, a claim may be for a subcombination, which, although not operative alone, is new and capable of co-operating with other things, which would be understood by those skilled in the art, or for which reference may be had to the specification, to produce a useful result.

### DUNN MFG. CO. et al. v. STANDARD COMPUTING SCALE CO.

(Circuit Court of Appeals, Sixth Circuit. March 13, 1913. 204 F. R. p. 617.)

#### 1. PATENTS—SUIT FOR INFRINGEMENT—ACCOUNTING FOR PROFITS.

On an accounting for profits in an infringement suit, where the infringing article sold by defendant was that of the patent, with the patented improvement on which defendant paid royalties, the amount so paid does not of itself constitute such a segregation of profits attributable to the use

of the improvement as to leave all the remaining profits necessarily attributable to the invention infringed.

#### 2. PATENTS—SUIT FOR INFRINGEMENT—ACCOUNTING FOR PROFITS.

Whether the fact that the entire structure made and sold by an infringing defendant is included in the combination claims of the patent requires it to account for all of the profits made thereon, without proof and a finding of the fact that the sales were due to the presence of the feature which distinguished the patented device from the prior art—*quære?*

#### 3. PATENTS—INFRINGEMENT—COMPUTING CHEESE CUTTER.

The Dunn patent, No. 800,431, for a computing cheese cutter, held not infringed by a device made and sold by defendant, as changed after a decree holding its former device to be an infringement, and the bearing of the fact that such change avoided infringement on the computation of profits recoverable for the former infringement considered.

#### 4. PATENTS—INVENTION—DOUBLE USE.

Where a given mechanical structure is devoted to a new manner of use, employing a function which is distinct from its old function, though inchoate in and developable therefrom, this may show invention, rather than mere double use, although the only physical change is appropriate remarking.

### FREE SEWING MACH. CO. v. BRY-BLOCK MERCANTILE CO.

(District Court, W. D. Tennessee, W. D. April 1, 1913. 204 F. R. p. 632.)

#### 1. PATENTS—EXTENT OF MONOPOLY—POWER TO CONTROL SALE OF PATENTED ARTICLES.

A purchaser of a patented article of manufacture from an agent authorized to sell the same in the place of sale becomes the absolute owner with the unrestricted right to resell the same at any time and in any place, although it may be in territory exclusively assigned by the patentee to another as agent or licensee.

#### 2. PATENTS—EXTENT OF MONOPOLY—POWER TO CONTROL SALE OF PATENTED ARTICLES.

A patentee or his assignee who has sold the patented article, received full payment therefor, and parted with the possession thereof has received the full benefit of the "exclusive right to vend" said article given him by Rev. St. § 4884 (U. S. Comp. St. 1901, p. 3381), and has not the right to fix the price at which it may be resold by a purchaser with whom he has no contractual relations, although such purchaser may have knowledge of the attempted restriction.

#### 3. PATENTS—"EXCLUSIVE RIGHT TO VEND"—"SOLE LIBERTY TO VEND."

The phrases "exclusive right to vend" used in Rev. St. § 4884 (U. S. Comp. St. 1901, p. 3381), relating to patentees of inventions, and "sole liberty to vend," as used in Rev. St. § 4952 (U. S. Comp. St. 1901, p. 3406), relating to copyrights, mean substantially the same thing.

### SAWYER-SMITH CO. v. JOHN DITTMAR & SONS et al.

(District Court, D. Maryland. April 15, 1913. 204 F. R. p. 637.)

#### PATENTS—VALIDITY AND INFRINGEMENT—BOWLING PIN.

The Sawyer patent, No. 1,030,834, for a bowling pin having a ring of indurated fiber set in a groove in the bottom to prevent splitting or chipping, was not anticipated and discloses patentable invention; also held infringed.

### RICHMOND HOSIERY MILLS v. JULIUS KAYSER & CO.

(Circuit Court of Appeals, Second Circuit. April 14, 1913. 204 F. R. p. 778.)

#### TRADE-MARKS AND TRADE-NAMES—PRELIMINARY INJUNCTION—IRREPARABLE INJURY

Complainant, engaged in the manufacture and sale of low-priced cotton stockings under a trade-mark "Wonderhose," sued to restrain defendant's use of the word "Wonderfoot" in connection with the manufacture and sale of the high-priced silk stockings, sold under different conditions, on the ground of unlawful competition. Defendant was amply responsible for any damages that might be recovered, and it did not appear that complainant could be seriously injured pending a trial on the merits. Held, that complainant was not entitled to an injunction pendente lite, restraining defendant's use of such word.

### FISHEL MESSLER CO. v. FISHEL & CO. et al.

(Circuit Court of Appeals, Second Circuit. April 14, 1913. 204 F. R. p. 790.)

#### 1. PATENTS—SUIT FOR INFRINGEMENT—ESTOPPEL TO DENY VALIDITY.

A patentee, who assigns the patent to him self and another, as partners, is estopped to deny its validity, when sued for infringement by an assignee of his partner's interest, whether such assignment was voluntary or through a trustee in bankruptcy.

#### 2. PATENTS—INFRINGEMENT—DESIGN FOR CLASP PIN.

The Fishel design patent, No. 37,055, for a design for a clasp pin, held not infringed.

#### 3. PATENTS—INFRINGEMENT—JEWEL BAR.

The Fishel patent, No. 884,979, for a jewel bar, held infringed.

### LYDIARD-PETERSON CO. v. WOODMAN

(Circuit Court of Appeals, Eighth Circuit. March 3, 1913. 204 F. R. p. 921.)

#### 1. COPYRIGHTS—EXTENT OF MONOPOLY.

The holder of a copyright has no monopoly by virtue of the issued copyright itself; his rights being measured solely by the statute, provided he has complied therewith.

#### 2. COPYRIGHTS—NOTICE—MAP.

Act June 18, 1874, c. 301, 18 Stat. 78 (U. S. Comp. St. 1901, p. 3411), provides that a copyrighted publication must contain a notice on its face or title page, "Entered according to Act of Congress, in the year . . . , by A. B., in the office of the Librarian of Congress, at Washington;" or at his option the word "Copyright," together with the year and the name, thus: "Copyright, 18—, by A. B." Held, that where a map of a lake and surrounding property was drawn by J. C. Woodman and published by the Woodman Publishing Company, a copyright notice on the map, "Copyright 1908, Drawn by J. C. Woodman," was insufficient.

#### 3. COPYRIGHTS—DIRECTORY—MAP.

Complainant published a map of a lake and surrounding territory, called "Woodman's Minnetonka Map-Directory, 1908." On the title page of the book were the words "Copyright 1908 by Prentiss M. Woodman, Woodman Publishing Company, Lumber Exchange, Minneapolis, Minn." The map had on its face "Woodman's Minnetonka Map-Directory, Copyright 1908, Drawn by J. C. Woodman." It also contained red figures referring to the index book or directory by which the particular pieces of property shown on the map were further described and identified. The book contained a pocket for the map, both being referred to as "Map-Directory" and intended to be used together. Five hundred more maps than books were published, and some extra maps were sold alone, but not until after the book was copyrighted. Held, that the map was a part of the book, and protected by the valid copyright notice in the book, though the notice on the map was insufficient.

### NATIONAL CASKET CO. v. STOLTS.

(Circuit Court of Appeals, Second Circuit. April 14, 1913. 204 F. R. p. 983.)

#### PATENTS—VALIDITY—PRIOR ART—BURIAL CASKETS—FACE PLATE—TRANSPARENT GAUZE—FABRIC.

Reissue patent No. 12,750 (original No. 619,567), issued to the National Casket Company, as assignee of William Hamilton, for a face plate comprising a stretched sheet of transparent non-brittle gauze fabric, mounted on a supporting member, to be used in burial caskets, held devoid of invention, in view of the prior art, and therefore invalid.

### GENERAL ELECTRIC CO. v. BUTLER LIGHT, HEAT & MOTOR CO.

(District Court, W. D. Pennsylvania. April 18, 1913. 205 F. R. p. 42.)

#### 1. PATENTS—VALIDITY—DELAY AND LACHES.

A patentee, as shown by an affidavit filed by him in the Patent Office, conceived his invention, which related to a system of electric distribution, in 1879. In 1885 he applied for a patent, which, after rejection, was finally granted in 1902. In 1903 a suit for its infringement was commenced, but was not brought to a hearing for 10 years thereafter. During the preceding 33 years many others had independently made and perfected devices along the same lines, which were in extensive use. Held, that there was such lack of diligence and laches on the part of the patentee and his assignees as rendered the patent invalid.

#### 2. PATENTS—SYSTEM OF ELECTRIC DISTRIBUTION.

The Thomson patent, No. 698,156, for a system of electric distribution, held invalid for lack of patentability, novelty, or invention, and also by reason of the patentee's delay and laches.



## MECHANICAL INVENTIONS

Patents for which have been procured through the Patent Soliciting Office of E. G. Siggers, Patent Lawyer, Washington, D. C.

Lee Miller, Chicago, Ill. Parachute.

This invention relates to an aerial life saving device of the parachute type, and it has for its object the provision of a device which may be worn as part of the clothing of aviators operating aeroplanes, balloons, and the like, or those engaged as steeple jacks at lofty elevations and subject to danger from falling. The object of the invention is to provide for the automatic and rapid expansion of the same regardless of the position assumed by the wearer in his fall, the device being of a size sufficient to support the heaviest man, and at the same time permit the automatic operation of the device in such a manner as to entail the least burden because of the weight, and the least interference with the movements of the persons so equipped. The invention consists of a folding parachute having suspension cords, a harness arranged to be attached to the aviator's body to support the folded parachute above the head, an inflator carried by the harness and comprising an air duct having expansible walls and discharging within the folds of the parachute, a case enveloping the collapsed parachute and adapted to fit around the head of the wearer, and releasable means connecting the case to the harness.

Alfred A. Bilyeu, Granby, Mo. Rotary Steam Engine.—This invention has for its object the provision of an engine having an improved form of piston, characterized by its expansion under the pressure of motive fluid so as to seal the space between said piston and the cylinder walls, whereby the fit may be made loose and undue friction avoided. The invention also relates to the arrangement of an abutment for the pressure fluid operated wholly by mechanical means, whereby exactitude is obtained and wear on the external parts of the engine materially reduced. The invention also includes a novel arrangement of starting valve, whereby the engine is more readily set in motion from any position of rest. The invention consists of a cylinder having peripheral and side walls, a piston mounted to rotate loosely therein and comprising a body portion and a piston head, the head being arranged to expand laterally under pressure of the motive fluid to seal the inter space between the head and the cylinder walls.

August Lrock, Hayfield, Iowa. Resilient Wheel.—This invention has for its object to provide a construction adapted to be readily applied to an ordinary rigid wheel to convert the same into a resilient wheel adapted for use on automobiles, or other vehicles, and capable of affording the resiliency of a pneumatic tire. The device includes a flexible tire consisting of a chain arranged concentric with and spaced from the rim of the rigid wheel, and composed of pivotally connected links, radial guide rods arranged in pairs and extending inwardly from opposite sides of the links and straddling said rim, transversely disposed guide plates seated against the outer periphery of the rim and projecting laterally from the same, and provided in

their projecting portions with guiding openings receiving the said rods, and coiled springs disposed on the outer portions of the guide rods and interposed between the links and the guide plates and adapted to cushion the flexible tire.

Christ Mineart, East Pleasant Plain, Iowa. Car Brake.—The aim of the present invention is to provide an inexpensive and practical car brake adapted to be applied to any of the trucks and equipped with means for preventing the brake beams from dropping down upon the rails, whereby the entire brake mechanism will be clear underneath the trucks. The car brake comprises brake beams located at opposite sides of the spring plank and arranged above the plane of the lower face of the same, and operating between the spring plank and the car wheels, an upright lever connected at its lower end with one of the beams and extending upwardly therefrom, and an inclined connecting rod extending from the lever through the space between the spring plank and the bolster and connected with the other brake beam, said rod being provided adjacent to the latter brake beam with a slight bend and being straight from the bend to its other end.

Christ Mineart, East Pleasant Plain, Iowa, and Edward E. White, Brighton, Iowa. Car Brake.—This invention, which is an improvement on the prior Mineart patent, is equipped with adjustable means for enabling a uniform pressure to be applied to both pairs of the car wheels. It includes brake beams located at opposite sides of the spring plank and operating in the space between the same and the car wheels, an upright lever connected at its lower end with one of the brake beams, a transversely disposed equalizing lever located in the space between the spring plank and the bolster and pivoted at one end, a guide or guard extending longitudinally of the truck and receiving the free end of the equalizing lever, and links pivoted at their inner ends to the equalizing lever and connected, respectively, at their outer ends to the upright lever and to the brake beams at the opposite side of the spring plank.

Frank X. Schad, Gainesville, Tex. Spring Top Support for Vehicles.—It is the object of the present invention to provide a spring top support adapted to be easily applied to a buggy, or similar vehicle, and capable of ready adjustment to suit different styles and makes of vehicles. The invention comprises a spring having one of its terminals free and bent or folded upwardly or backwardly to provide a terminal engaging portion, means for securing the other end of the spring to a vehicle, and a rest composed of a transversely curved back, or shield, clamped between the bent terminal of the spring and the body portion of the latter, and projecting from opposite sides of the spring, a flexible lining extending across the spring, and fastening devices securing the lining to the back, or shield, at opposite sides of the spring. The means for securing the spring to the vehicle consists of a sleeve composed of two sections or members hinged together at the top and provided at the bottom with fastening means, said sections or members being adapted to embrace the terminal of the spring which is hooked to engage a pivot stud.

Charles F. Bettmann, New Albany, Ind. Trolley Wheel.—It is the aim of the present invention to provide for electric railways a trolley wheel in which the parts contacting with the trolley wheel will be capable of rotary movement independently of one another and also of the hub or bearing of the trolley wheel, whereby the friction and wear will be reduced to a minimum and the trolley wheel prevented from rapidly heating. The trolley wheel comprises in its construction a tubular hub provided at one end with a head and adapted to be mounted on the shaft or axle of a trolley head, a central or pulley section provided with a central opening to receive the tubular hub and having central tubular bearing extensions projecting from the side faces of the said section and arranged on the end portions of the said hub, side disks fitted against the side faces of the central or pulley section and provided with central openings receiving the tubular bearing extensions, which space the disks from the tubular hub, said disks being capable of rotary movement independent of each other and also independently of the said central or pulley section, and a collar mounted on one end of the hub and detachably retaining the parts in assembled relation.

Martin L. Grove, Tylersburg, Pa. Automatic Gas Cutoff.—The object of this invention is to provide a gas cutoff having an inlet and an outlet and provided with means operable through an abnormal decrease in the flow of the gas for closing the outlet, and equipped with separate means for producing a subnormal flow within the cutoff to cause an operation of the first-mentioned means and a closing of the outlet when there is an abnormal increase of flow of gas through the inlet. It is also an object of the invention to locate the automatically operable mechanism wholly within the casing, and to provide exteriorly operable gas-tight means for resetting the cutoff and for adjusting the means for producing a subnormal flow in the cutoff when there is an abnormal increase in the flow of gas through the inlet. The automatic gas cutoff includes a casing having an inlet and an outlet, a vertical partition arranged within the casing and provided with an opening, an arm pivoted on each side of the partition, one of the arms being provided with a closure for the said opening and the other arm being provided with a plunger arranged to register with said opening, a second partition provided with an opening, a weighted arm pivotally disposed near the said second partition and provided with a closure for the opening thereof, a pivoted trip member arranged to engage one end of the said weighted arm and to be engaged by the pivoted arm bearing the plunger, the movement of the latter arm serving to release the weighted arm through the medium of the pivoted trip, and means including a spring for adjusting the distance of the first named closure from the first mentioned opening.

Fred G. Garrard, Kimball, Nebr., inventor; Wesley Alexander, assignee of the first patent. Two patents.—The first patent covers a vent for well tubing for opening and closing the drain vents of pump tubes, and its primary object is to provide a device adapted to be mounted on a well tube having a small bore, and equipped with operating parts so constructed and arranged that little relative movement will be required to open and

close the drain vent. The device comprises a vertically disposed well tube provided with a drain opening, a lever extending longitudinally of and fulcrumed close to the said well tube and having a closure at the lower end of the lever for the drain opening, an outwardly and upwardly extending cam face provided at the upper end of the lever and forming an undercut portion, a plunger rod movably mounted on the well tube above the lever, a plunger head carried at the bottom of the plunger rod and having a slidable bearing against the well tube, and a cam face formed on the outer side of the plunger head and extending to the lower end of the same and normally projecting behind and located out of engagement with the cam face of the said lever and at an angle thereto, whereby when the plunger rod is lowered, the cam face of the lever will contact with the cam face of the plunger head and force the lever outwardly until the closure is pressed tightly against the drain opening to close the same.

The invention of the second patent has for its object to provide a land packer equipped with a plurality of flexible sections adapted to adjust themselves to the character of the ground, whereby a uniform packing of the soil is secured. The land packer comprises a tongue, a transverse pivot bar connected with and extending from opposite sides of the tongue, separate sets or series of packing wheels located in rear of the transverse pivot bar, outer longitudinal links connecting the series of packing wheels with the pivot bar, and inner links extending beneath the pivot bar and pivoted to the tongue, the links being arranged to swing upwardly and downwardly, and the said pivot bar constituting a stop for limiting the relative upward movement of the packing wheels.

Peter J. Johnson, Shelley, Idaho. Key Hole Guard for Locks.—The purpose of this invention is to provide a guard device of convenient size adapted to be quickly positioned in a lock, and capable of instantly adjusting itself to the lock and of firmly holding itself in position and thereby effectually preventing picking or otherwise tampering with the lock to open the door. The key hole guard consists of a shank provided with means for engaging the lock casing, a keeper slidably mounted on the shank and having a lug adapted to engage the key hole of a lock casing, a spiral spring mounted on the shank and having its base coiled and bearing against the keeper to force the same towards the lock casing, a nut adjustably mounted on the shank and bearing against the outer end of the spring to regulate the tension thereof, and rearwardly extending lugs carried by the keeper and forming a hand hold to facilitate the retraction of the said keeper.

James F. Myser, Denver, Colorado. Folding Shipping Crate.—The folding crate of the present invention is designed particularly for shipping poultry, hogs, sheep, etc., and is adapted to be quickly folded and unfolded, and is equipped with feed and water troughs capable of folding compactly with the walls and top of the crate, and adapted when folded to occupy an upright position. The crate includes a bottom, side walls hinged to the bottom and foldable inwardly over the same, a top composed of sections hinged to the side walls at the upper entrance thereof, end walls hinged to the bottom and foldable inwardly over the side walls, and a catch mounted on the end walls at the central portion thereof and having opposite recesses to receive the sections of the top and provided with inclined guiding edges or faces extending upwardly to the said recesses.



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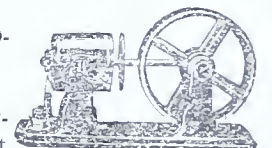
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## CHANGES IN THE PRACTICE OF THE PATENT OFFICE.

The decisions of the Commissioner and First Assistant Commissioner of Patents within the last few months have indicated very plainly to practitioners before the Patent Office that a different order prevails. These officials do not hesitate to upset traditions, precedents and decisions which were not founded on reason and logic. Witness the following:

### DIVISION NOT REQUIRED IN REISSUE APPLICATIONS.

Ex parte Van Nostrand decided Sept. 23, 1913, was the first important ruling. As far back as 1879 it was decided in ex parte Lippincott that division might be required in a reissue application, and the practice has obtained ever since of requiring the payment of an additional fee for each reissue patent, whether the division of the original patent was demanded by the applicant or required by the Commissioner. Commissioner Ewing in deciding this question said:

"The statute seems to me plainly to assume that the Commissioner having once granted a patent will not change his opinion as to the propriety of allowing in a single reissue claims covering the whole subject-matter thereof. The issuance of a reissue patent is not the granting of a patent, but the exercise of the privilege of correcting a patent already granted, for which the law provides a fee different from the fee required originally, and I find no authority for requiring the applicant to pay more."

The Commissioner reversed the decisions of the Primary Examiner and the Board of Examiners-in-Chief, and overruled the decision in ex parte Lippincott.

### CHANGE OF TERM OF DESIGN PATENTS.

In ex parte Forward, the Commissioner held that an amended petition, in an application for design patent, asking that the patent be granted for one of the longer terms provided

by the statute, will be entered if accompanied by the additional fee and presented before the allowance of the application.

It seems that the applicant in his petition filed with the application asked for the issuance of a design patent for three and one-half years, and paid the fee provided by law for a patent for this term. After the application had been acted upon several times by the Patent Office and found to be allowable, if certain objections were overcome, the applicant forwarded an amendment purporting to comply with the Examiner's requirements and accompanied it by an amended petition, duly signed by him, asking that the patent be granted for the term of fourteen years, and enclosing a check for the difference between the fee originally paid and the fee required by law for a fourteen-year design patent. Under the practice formerly prevailing, the Examiner raised the question whether the amended petition should be accepted. The Commissioner in deciding the case, overruled decisions which were made in 1888 and 1890, saying:

"In the absence of any plain prohibition of the statute, I think that the petition here presented ought to be entered. The fee which the statute provides for searches in patents of utility is only \$15, and the minimum charge of \$10 for a short term design patent is ample to cover the search and cost of issuing the patent. The fee is, in fact, so large that it deters designers from taking the benefit of the patent in many instances. It is therefore, I think, peculiarly proper that the statute should be liberally construed. It seems to me clear that under the provisions of the statute, the applicant may change his election in the manner indicated in the present case at any time prior to the allowance of the application."

### DESIGN PATENT CLAIMS.

In ex parte Owen, First Assistant Commissioner Frazier decided that the presence in the claim of a design application of the words "substantially as shown" was not objectionable. For many years the Patent Office has pursued the policy of requiring applicants to omit the word "substantially," or any word of similar import, in the claim of a design patent, taking the ground that the use of the word is intended to cover modifications. In reversing the former practice of the Patent Office on this question, the First Assistant Commissioner said:

"No decision of the courts or the Commissioner has been found authorizing the elimination of this word 'substantially' from the claim in design cases, and no good reason can be found for such a requirement."

### PREMATURE FINAL REJECTION OPPOSED.

In ex parte McGill, First Assistant Commissioner Frazier reversed the action of the Examiner in a case the facts of which were as follows:

In the first official action on the application, the examiner pointed out three instances tending to show that the apparatus disclosed in the application was not operative. In reply

the applicant presented an amendment and an argument traversing the statements of the examiner as to the alleged inoperative features of the apparatus. In the second official action the claims were rejected on the ground that they covered an inoperative apparatus. In the second communication filed by the applicant, the latter presented a number of affidavits of different persons intended to overcome the ground of rejection. The examiner in his third official action held the affidavits to be insufficient and finally rejected the claims. First Commissioner Frazier in holding that the rejection should not have been made final, said:

"Technically speaking the Examiner's action, being the second action upon the same claims and for the same reason, could be considered a proper final rejection; but in this case, while the specific ground of rejection remained the same, such rejection for the first time gives an additional reason, namely, insufficiency of the affidavits to overcome the rejection. There is, therefore, from this point of view lacking the second action on the issue raised by the presentation of the affidavits."

In other words, the Examiner should have informed the applicant specifically wherein the affidavits were insufficient, and then given him an opportunity to supply the deficiency by other affidavits.

### NO SNAP JUDGMENT.

Another decision which shows that snap judgment is not to be given on applications for patents, but that full opportunity must be accorded to the applicant in determining the patentability of the invention, is the decision of the Commissioner in ex parte Huntley which was decided Oct. 31, 1913. The facts were as follows: In response to the first rejection of the application, the applicant argued with the Examiner, whereupon the Examiner repeated his rejection and gave a final rejection of the application. Commissioner Ewing in deciding the case said:

"It is undoubtedly proper to enter a final rejection on the second action of the case, where it appears that the applicant fully understands the grounds of the Examiner's rejection and merely takes issue as to the correctness of that rejection. In the present case, however, the applicant's argument filed in response to the first rejection shows, when taken in connection with the next action by the Office, that he did not fully understand the Examiner's ground of rejection. Under these circumstances, the rejection should not have been made final. But even if it were not clear from the amendment that the applicant did not understand the Examiner's ground of rejection, it is believed that when he came in promptly after the final rejection and pointed out that he did not understand it, and asked permission to amend the claim, the final rejection should have been withdrawn and the amendment entered."

### LABELS AND TRADE-MARKS.

A decision which will be of interest to applicants for the registration of labels and trade-marks was rendered by First Assistant Commissioner Frazier in ex parte American Talc Co. It corrects the practice of the Patent Office in a very important particular. Soon after the pure food and drugs act went into effect in 1906, the Patent Office instituted a practice of refusing the registration of trade-marks and labels, where labels submitted as specimens contained statements, which in the opinion of the Patent Office, or under the ruling of the Department of Agriculture, constituted misbranding of the goods. One of the forms of alleged misbranding was the use of the term "cure" as applied to a remedy of any kind for the treatment of human ills.

The Supreme Court case of United States vs. Johnson, 221 U. S. involved precisely the same question, namely, an allegation that a label bearing a false statement as to the curative or therapeutic effect of a drug or medicine on which the label is used, falls under the misbranding clause of the law. The Supreme Court reversed the lower court, deciding that there was clearly no warrant under the Pure Food law for holding that statements of this nature, relating to the effects that might be produced by the medicine or drug, or any statement predicated upon the opinion of an expert, could not be held to be misbranding such as was contemplated by the statute. That law, the Court said, covered under the misbranding provision a false and misleading statement of fact concerning the ingredients composing the drug or medicine or other composition.

Notwithstanding this decision, the Patent Office continued for over a year to reject applications for the registration of labels and trade-marks, wherein the word "cure" appeared on the labels. The First Assistant Commissioner in deciding this question held

"It is clear that the mere presence of the word 'cure' on the label, in the connection here shown, is not sufficient to justify the refusal of registration."

Thus the practice of the Patent Office is brought into harmony with the decision of the U. S. Supreme Court, and it will strike one as singular that the Patent Office should have continued obstinately to insist upon the rejection of applications wherein the labels contained the word "cure," after the decision of the Supreme Court had been rendered holding that the presence of this word on the label was not proof of misbranding under the Pure Food and Drugs Act.

### EXAMINATIONS FOR PROMOTIONS.

Not only is the improvement in the Patent Office reflected in the decisions of the heads of the Patent Office, but in other ways. Appointments to the examining corps of the Patent Office are made through the Civil Service Commission. An applicant for the position of assistant examiner must pass the Civil Service Examination before he can become an examiner, but after he gets inside of the Patent Office, the civil service law does not affect his



promotion. Many years ago the Patent Office conducted competitive examinations to determine questions of promotion, but during the last three administrations, promotions were said to be based upon seniority, or what was more probable, upon official favor. Commissioner Ewing felt that this was wrong, so he gave the order that examinations for promotion would be held within the Patent Office, giving the Examiners two days notice of the day of the examination. Thus, there was conducted within the Patent Office the first civil service examination for promotion which has been held for twelve years. Seniority and official favor has given way to merit and efficiency in the promotions to be made in the examining corps of the Patent Office.

It is conceded by the officials that an examination alone is not a complete test of a man's capabilities as an examiner, but a civil service examination followed up by a well-thought-out plan of efficiency rating will result in improved conditions within the Patent Office. It is the belief of the new administration that the examination plan is the best means of finding out the really able men in the Patent Office and determining their fitness for promotion.

#### PAYMENT OF FINAL FEES.

Another innovation has been established in facilitating the payment of final government fees in allowed applications for patents on the last day. Under the law, an inventor is given six months after his application is allowed before he is required to pay the final government fee. In many instances inventors and attorneys wait until the last day before sending in the money. Under the last administration, if the final fee was not received before 4:30 P. M. of the last day of payment, the application became forfeited, and the case had to be renewed at an additional expense. The new Commissioner has provided means allowing inventors and attorneys to pay final government fees up to 12 P. M. of the last day of payment. He has provided a box with the captain of the watch of the U. S. Patent Office, in which box the attorney or inventor may deposit a check or money with the final fee memorandum, and all final fees received up to 12 P. M. are credited as having been received by the Patent Office within the six months period. This is a great convenience to attorneys, for it happens every once in a while that the inventor delays the sending of money until the last moment. Frequently the money is received at the attorney's office in the last mail, after the Patent Office is closed. There is then no way of making payment directly to the Patent Office. This simple expedient provides a means by which the forfeiture of applications may be avoided.

#### SATISFACTORY PROGRESS.

The new administration of the Patent Office has been running scarcely three months, and it is astonishing what reforms in practice have been effected within that time. There is naturally a feeling of satisfaction and delight among attorneys practicing before the Patent Office. The old order

of raising some technicality to defeat the claims of an applicant for patent no longer has any force in the Patent Office. If an inventor has any merit in his claims, and is careful in the presentation of the same, we have no doubt but that the Patent Office as now administered will accord him the protection to which he is entitled. It is the first time in many years that we have been able to make this unqualified statement.

While much has been done to cut the red tape and remove the technicalities in the practice of the Patent Office, there are still many defects in the practice which should have and doubtless will receive the consideration of the Commissioner. We wish him God speed in his work of making the Patent Office a real benefit to all the inventors of the country, and not for a special few only.

#### Maps Made from Balloons.

The reason that balloon photography has not been more successful is that distant points are seen at an angle, and a wide angle lens could not be used for snapshot work. A device recently invented by an Austrian obviates these difficulties. A central camera is used, surrounded by seven others which point around the horizon. The slanting views taken by these cameras are corrected by photographing the plates with an apparatus known as the perspectograph, which converts the slanting view into that which would result from a vertical exposure. By joining the eight views, a comprehensive and correct map of a wide expanse of territory results. This expedient may work an important change in methods of map-making, and lessen the expense of surveying. In work upon unsurveyed or inaccessible country, especially in war time, its utility will be great. In hilly country, exposures are made from two points, so as to obtain stereoscopic views of the area.

#### Making Bottles.

Rivalling the famous query, "Where do all the pins go?" is the question, "What becomes of all the glass bottles?" They are articles not easily disposed of without leaving traces of their manner of exit, yet all the while factories run full blast making them, and there is no diminution in the constant demand for them.

The base of all glassmaking is the proper formation of the "mix." This is that combination of material which, when fired, results in the formation of the glass. Its essential ingredients are white sand, lime, carbonate of soda and manganese. Manganese prevents tinting, making the colorless finished product desired. To the above ingredients may be added coloring matters such as cobalt, saffron, chromium or copper scales. Other materials, such as bone-ash, carbon, and so on, are added, according to the individual formulæ of the different makers. These different formulæ are often the results of years of experimenting and are the cherished secrets of the glassmaker's profession.

The operation of mixing or combining the materials to be used is quite a delicate matter. A slip here means that the whole batch of glass will be worthless. The ingredients have to be put together in just the proper proportion and must be of high purity them-

selves, or failure is very apt to result. Failure with the large quantities used is rather a costly matter in a glass plant. About 7,000 to 8,000 pounds of "mix" are prepared at one time. This quantity does for one of the ordinary-sized furnaces.

The actual process of mixing is done in a long trough like a mortar trough. In it indiscriminately are dumped the proper amounts of the different materials, and then they are thoroughly stirred together with a hoe. When the process has been completed the "mix" should be even and consistent, resembling the ordinary sand of the seashore, except for having little white and green grains in it. It is now ready for the firing.

Firing is a process of many different methods of accomplishment. In the tank furnace, the flames come into actual contact with the "mix," while in the pot furnace heat is applied, but the flames are not in real contact with the material. This second condition is obtained by having only clay vessels or "pots" set into a furnace. They have no opening except that through which the material is introduced into them on the outside of the furnace. The flames are thus all around them, but do not enter.

Whatever the style of furnace, the fire within it reaches a temperature of several thousand degrees. In it the "mix" takes about 12 hours to melt. In every furnace there are a number of little doors by which entrance can be had to the molten mass of glass. In the pot furnace these are, of course, simply the mouths of the pots. This brings one to the making of the glass bottles from the molten "mix" or glass.

In the making of the glass bottle there are three steps—the blowing and molding, the finishing and the annealing. Each of these is of peculiar interest from a certain sort of picturesqueness that comes from the rapid handling of the glowing, molten glass. It all seems so simple, yet it requires infinite care.

The glassblower takes a long steel tube, puts one end into the hole by him, fiddles around in the molten mass inside the furnace for a moment or two and then brings it out with a small mass of yellow, glowing glass, about the size of a crab apple, hanging to the end. For the ordinary four ounce bottle this is the right size. Of course, for larger or smaller receptacles the amount is proportionate.

He then takes his tube and twiddles it briskly in his fingers for a few minutes. This is to evenly distribute the mass at the end of the pipe. Then he blows in it and rolls it upon a flat slab of iron near him, twirling the pipe briskly as he does so. This results in elongating the globe of glass on the end of the tube until it has the shape of a long "O." Now it is ready to be pressed in the mold. This article is just like the sort that used to be used by our forefathers for the manufacture of bullets, having a closing and opening movement like a lemon squeezer.

It is opened, the stick of glass is put into it and then it is clamped shut. The worker takes a big breath, applies

his mouth to the end of the tube and blows very hard. This forms the cavity in the bottle and presses the malleable glass into the recesses of the mold. The reason for having the glass hanging evenly from the pipe can now be seen. If it were not for that, the walls of the glass bottle when it was finished would be of uneven thickness. When the glassblower applies his lungs to the end of his pipe the connecting bit of glass between the bottle and the tube distends and bursts, and the first step in the process is completed.

When the half completed bottle is taken out of the mold, which is done immediately, it has the regulation appearance, except for one thing—the neck and the mouth by which it was cast have a ragged look and are unshaped. For this purpose a third man puts the incomplete vessel on the end of an iron bar and sticks the neck into a small furnace immediately in front of him. When the glass has once more become soft and workable—a matter of only a few seconds—he takes it out, twirls it by means of the rod and then with a steel tool, held in one hand, shapes the neck and mouth to suit himself.

The bottle is now to all intents and purposes finished: but there is one more process it has to be put through before it can go forth finished. This is "annealing" or tempering. "Annealing" is necessary for this reason, that if the bottle were allowed to cool suddenly the outside glass would cool and contract so much sooner than the inside that the stress of the action set up between them would make the finished bottom apt to break. It is accomplished by putting the bottles as soon as they are finished into a long oven, heated at one end to a high temperature, but gradually diminishing in warmth until the other end is of average coolness. The bottle is put upon a tin sheet at one end of this and then slowly dragged through. It is thus allowed to cool without sudden change of temperature, and when it arrives at the other end of the oven is ready to be assorted and packed for shipment.

The whole process is not nearly so simple as it sounds, and the work has to be done a great deal faster than it can be told about. For instance, the temperature of the glass when it is put into the mold must be just so high, and the oven in which the bottles are annealed must be nicely graduated in heat. In fact, the whole process of glassmaking is a succession of niceties. Whenever it is desired to set a name or title into a bottle, as on most druggists' bottles, a brass die, with the proper letters cut into it, is set into one side of the mold. A special department is devoted to the preparation of these dies.

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Molding machine ..... R. J. Schwab  
Molding machine ..... W. W. Doolittle  
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Motor-controlling means, Induction ..... N. Pensabene  
Motor or other vehicles in case of accident, Means for identifying ..... O. A. Weissenborn  
Mowers, Seed-gathering attachment for ..... V. M. Jackson  
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Music-leaf turner ..... O. I. Searles  
Musical instrument, Wind ..... H. C. Martin  
Needle and embroidery workers' assistant ..... G. Kramer  
Needle-setting device ..... H. J. Martin  
Nest, Trap hen's ..... R. S. Blevans  
Net, Fly ..... W. Erdmann  
Non-skidding device ..... H. J. Hershheim  
Numerating machine ..... D. Giron  
Nut, Bolt ..... R. M. Hughes  
Nut lock ..... L. J. J. B. Cheneau  
Nut lock ..... A. E. Lotstrom  
Nut lock ..... P. T. Fiehler  
Not tightener for silo rods, &c. ..... G. M. Anderson  
Oil burner ..... G. Gilberd  
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Oils with gases, Apparatus for treating ..... C. Ellis  
Ore pulps, slimes, and the like, Apparatus for treating ..... B. MacDonald  
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Overalls ..... T. W. Vance  
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Packing ring ..... L. E. McQuay et al.  
Paper fastener ..... E. L. Bowes  
Paper-feeding mechanism ..... A. C. Pratt  
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Paper receptacle ..... C. T. Bloomer  
Paper, Receptacle for carbon or other thin strips, Machine for taking off single strips from a pile of ..... H. Karkiewicz  
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Pastry-making machine, Automatic ..... F. A. Bruckman  
Pen, Fountain ..... F. W. Vaughn, Jr.  
Pendulum-length adjuster ..... W. J. Evans  
Percussive apparatus ..... H. C. Behr  
Perforating paper strips, Apparatus for ..... A. Pollak  
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Photographic reproductions, Making colored ..... J. Lewisohn  
Phrasing attachment, Automatic ..... H. L. Hentz et al.  
Piano, Coin-operated automatic ..... E. A. Kingsley et al.  
Piano-locking device, Automatic player ..... W. C. Stephenson  
Picker motion ..... J. T. Batting et al.  
Pin ..... E. Morehouse  
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Pipe coupling ..... I. E. Work  
Pipe coupling ..... J. Rossell  
Pipe-thread-cleaning device ..... C. E. Kramer  
Planter, Seed ..... T. H. Evans  
Plow and scraper, Combined ..... E. M. Reese  
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Plow, Land-breaking ..... A. Reed  
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Plow, Motor ..... A. E. Cook  
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Polishing drum ..... R. D. Hanish  
Postage stamps in strips, Manufacture of ..... J. Oehring  
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Powder mixer and granulator, Combined ..... J. F. O'Brien  
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Printing-plate holder and registering clamp ..... C. E. Rockstroh, Jr.  
Printing press, Plate ..... G. H. Gihon  
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Propulsion of marine vessels and for other purposes, Power installation for the ..... H. A. Mavor  
Pump, Automobile tire ..... E. S. Ryone  
Pump, Multistage parallel-flow ..... P. W. Fuller  
Puncture-repair plug ..... C. R. Terrell  
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Radial drill ..... W. T. Sears  
Rail joint ..... D. Waara  
Rail-joint lock ..... W. King et al.  
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Railway crossing ..... V. L. Cooper  
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Railway tie ..... J. W. Bolinger, Sr.  
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Railway tie and rail fastening, Metal ..... A. J. Hathcox  
Railway tie and spike ..... T. C. Sisk  
Railway tie, Metal ..... J. Griffin  
Railway tie, Metal-reinforced ..... J. F. Lahart  
Rain spout or conducting pipe ..... L. Glas  
Razor, Safety ..... L. Sieven  
Receptacle and handle and blank therefor, Covered ..... J. B. Miller  
Reeling and feeding mechanism ..... R. W. Armstrong  
Reflector, Search-light ..... C. A. Parsons et al.  
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Register system ..... J. Witmer  
Remover ..... D. Honorof  
Resilient wheel ..... M. Young  
Respirator ..... J. Adler  
Respirator ..... C. Striz  
Revetment, Flexible ..... G. O. Rogers  
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Rivet cloth, Apparatus for making ..... J. T. Rutledge  
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Rotary motor ..... P. J. Darlington  
Rug holder, Invisible ..... W. S. Wright  
Sad iron, Electric ..... J. Cayere  
Safety hook ..... J. G. O'Kelly  
Sash lock ..... J. E. Bourne  
Sash lock ..... A. D. Gardemeyer  
Saw handle ..... J. P. Jensen  
Scrubber and mop, Combined ..... A. Forisdal  
Seal press, Ratchet ..... E. J. Brooks  
Seaming mechanism, Blindstitch ..... W. Morrison  
Seams, Machine for opening and flattening ..... F. W. Coan  
Secondary battery ..... A. M. Sherer  
Selective-control system ..... C. E. Scribner et al.  
Separator ..... W. D. Nash  
Sewing machine ..... M. F. Brogan  
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Sewing machine, Broom ..... C. E. Oyler et al.  
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Shade roller and curtain rod, Curved ..... I. F. Hurlburt  
Shade stop and protector ..... W. F. Holsteeu  
Sharpening device, Lawn mower ..... C. E. Ring  
Sharpening device, Lawn mower ..... J. Windle  
Sheet-ascotting mechanism ..... G. Spiess  
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Sheet straightener and slow down for feeders, Combination ..... G. A. Martin  
Shock absorber ..... G. B. Reid  
Shock absorber ..... T. Hand  
Shoe form ..... L. W. Reinhardt  
Shoe jack ..... H. W. Laubert  
Shoes, gloves, &c., Adjustable securing device for ..... G. R. Thygeson  
Shutter, Window ..... A. Elefant  
Shuttle, Hand-threading antisuction ..... E. H. Ford  
Sifter ..... J. A. Wulfange  
Signaling system ..... J. L. Hall  
Signaling system for party lines ..... R. F. Spamer  
Signature-gathering machine ..... C. A. Juengst  
Silverware-cleaning device ..... J. W. Phillips  
Sink, Kitchen ..... F. G. Lane  
Sintering refractory materials, Process and apparatus for ..... G. Weintraub et al.  
Skirt-adjusting device ..... M. F. Heathecock  
Skirt gage ..... J. Burdick  
Slag, Treatment of ..... G. L. Danforth, Jr.  
Sludge, Treating ..... E. Steuer  
Smash protector ..... L. H. Landry  
Smoke and fume recorder ..... W. W. Strong  
Snatch block ..... A. Uren  
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Sound box ..... A. Hayes  
Sound-reproducing instrument ..... F. S. Kinney  
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Spindle-retaining device ..... E. D. Chesebro  
Spinning machine ..... J. Lacroix et al.  
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Stacker, Hay ..... H. A. Daniels  
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Stanchions, Chain attachment for adjustable ..... W. D. James  
Station indicator ..... M. and G. B. Golinkin  
Steam generator ..... H. A. Turnbull et al.  
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Stocking or sock and knitting the same ..... R. W. Scott  
Stone-cutting apparatus ..... M. Ahearn  
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Storage for manufacturing establishments, Overhead ..... H. E. Coffin  
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Strainer ..... W. H. Finigan  
Street-sweeping machine ..... T. H. Diserens  
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Support, Adjustable ..... J. Gangloff  
Swimming appliance ..... J. R. Teters  
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Table-leg lock, Folding ..... C. A. Carlson  
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Talking machine, Sound box ..... B. L. Rinehart  
Talking machine and sound-conveying tube ..... E. R. Johnson  
Tang ..... H. Wassmund et al.  
Tank hoop ..... C. R. Webber et al.  
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Tapes, ribbons, or bands of metal, Producing hollow ..... F. A. Feldkamp  
Tapes, ribbons or bands, Apparatus for electroplating hollow ..... F. A. Feldkamp  
Target trap ..... A. P. Davey  
Telegraphic transmitter ..... W. E. Shaw  
Telephone-exchange system ..... E. R. Corwin  
Telephone for party lines, Lockout ..... E. Bowman  
Telephone set, Sub-station ..... W. O. Beck  
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Telephony (3 pats.) ..... E. R. Corwin  
Textile machine ..... C. Marx  
Therapeutic apparatus ..... M. P. Segebarth  
Thread doubling and twisting machine attachment ..... J. S. Henry  
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Tire saver ..... L. Willour  
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Tire-tube tester ..... H. E. Whitney  
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Tool shanks to handles, Attaching ..... W. F. Hobbs  
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Wire-clamping tool ..... R. W. Hamann  
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Alcohols with therapeutically active acids, Esters of polyhalogen compounds of ..... R. Wolfenstein  
Alkali-metal hydroxides directly from alkali-metal chlorides, Producing ..... J. Kersten  
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Atomizer or humidifier ..... J. C. Rankine et al.  
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Bearing, Antifriction (2 pats.) ..... F. E. Bright  
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Car coupling ..... H. F. Pope  
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Carburetor ..... H. W. Alden  
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Carriage door bumper ..... A. D. Methven  
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Cash register ..... J. H. McCormick  
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Closet seat cover, Sanitary ..... H. Luthi  
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Commutator-trimming machine ..... T. E. Chappell  
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Concrete, &c., Bar for reinforcing ..... F. C. Schmitz  
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Concrete skylight, vault-light and floor-light, Constructing a ..... L. W. Mulford  
Container, Liquid ..... J. Eaklance  
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Cooking device, Electric ..... C. E. Sargent  
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Corn-lusking machine ..... E. Keith  
Corn rack, Seed ..... G. W. Whitworth  
Coiset, Apparel ..... D. Koj  
Cotton cleaner, seed ..... M. R. Davis  
Couch, Collapsible ..... C. J. Ayres  
Coupling, Pivot-pin support for ..... H. F. Pope  
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Cultivator attachment ..... C. W. Hill  
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Curtain fastener ..... W. Gates  
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Damper, Regulating ..... W. B. Fowler  
Damper regulator, Liquid-operated ..... S. P. and J. W. Belt  
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Davis, Boat ..... H. F. Norton  
Dental device ..... C. J. Pabner  
Desiccating apparatus ..... O. E. Merrell  
Desiccating process ..... C. H. Brigham  
Designs, Device for making ..... L. L. Allen  
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Dish handler ..... P. J. Collins  
Disinfectants and deodorants, Apparatus for applying ..... E. L. Johnson  
Display-form base ..... S. F. Cicheyl  
Display rack, Veil ..... M. Fitzpatrick  
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Domestic boiler ..... L. Englund  
Door-controlling mechanism ..... T. H. Garland  
Door fastener, Sliding ..... J. M. Hopkins  
Door hanger ..... E. Schmid  
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Doors, Self-closing compartment ..... W. P. Wilber  
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Draft equalizer ..... T. J. Dudley  
Draft gear, Radial ..... E. H. Schmidt  
Draft regulator ..... J. Milton  
Draft rigging ..... G. B. Morsberger  
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Electric circuits by light rays, Means for the systematic control of ..... S. Ocampo  
Electric heater ..... F. J. Holmes  
Electric light, adjuster ..... J. L. Rawson  
Electric machine, Dynamo ..... A. Hill  
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Binder, Loose-leaf ..... H. C. Miller  
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Binders, Holder for adhesive ..... L. Kingsley  
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Boats, Water-tight hatch for ..... W. H. Hayes  
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Bottle-blowing machine ..... S. E. Winder  
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Breach mechanism, Wedge-lock ..... M. Hermsdorf  
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Car stop, Mining ..... J. A. Nolan  
Car, Tool ..... J. W. Kendrick  
Carburetor ..... G. S. Pierson  
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Carburetor mechanism ..... M. L. Sammons  
Carcass hangers, Locking device for ..... C. A. Richards  
Card wire, Jacquard ..... L. S. Cannon  
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Casting apparatus, Metal ..... A. A. King  
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Cleaning apparatus ..... I. H. Spencer  
Clock dial ..... F. E. Windsor  
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Coal and the waste materials thereof, Apparatus for separating fine.....G. B. Damon  
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Cock, Steam-boiler gage.....H. W. Hoover  
Coils, Making ..... R. Varley  
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Compressor-controlling device.....R. Conrader  
Concrete caps on piles, Apparatus for forming.....L. Pierce  
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Conveyer, Portable.....J. and E. S. Legris  
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Core arbors, Device for connecting.....E. M. Wright  
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Cotton-opening machines, Evener for.....J. C. Potter  
Counter-buffing machine.....N. A. Monfils  
Crate, Knockdown ..... T. Cooke  
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Creel ..... J. P. Cronin  
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Crown-pin extractor ..... F. H. Skinner  
Curtain and shade support.....W. J. Jones  
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Cutting and embossing device.....F. H. Cook et al.  
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Dental appliance ..... F. H. Skinner  
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Display cabinet for eye-testing cards.....W. L. William  
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Display stand ..... P. L. Davis  
Door fastener and buffer, Sliding.....E. Schmid  
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Door, Track ..... A. K. Gillespie  
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Drafting instrument.....H. A. Webster  
Draw-bar carrier.....C. S. Shallenberger  
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Electric battery ..... D. H. Wilson  
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Electric machine, Dynamo.....A. A. Pifer  
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Electric switch ..... J. M. Blain  
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Envelop ..... H. H. McFarlane  
Explosion engine ..... C. Y. Knight  
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Explosive engine, Two-cycle.....H. H. Newman  
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Eyeglass-testing apparatus.....H. M. Black  
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Fence gap fastener ..... G. M. Altman  
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Folding table ..... C. C. Wilson  
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Grain driers, Duct-control mechanism for.....F. R. Morris  
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Journal box, Railway-car (2 pats.).....H. H. Hewitt  
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Latch Window ..... G. Erz  
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Leather-treating machine.....G. V. Anderson  
Lenses, Apparatus for the manufacture of.....M. Bentzon  
Life lines, Means for carrying (2 pats.).....B. F. McCreary  
Lighter ..... R. Fischer  
Line-casting machine ..... F. W. Neumayer  
Liquid-fuel burner ..... S. Crosbie  
Liquid-treating apparatus.....K. W. Bartlett  
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Nut, Lock ..... S. G. Meeker  
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Organic and inorganic materials, Treating.....J. A. McLarty  
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Packing, Rod ..... A. K. Waycott  
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Planter marker, Corn ..... A. J. Greene  
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Pressure motor ..... J. F. McElroy  
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Pump ..... C. D. Hill  
Pump, Air pressure ..... E. A. Rayes  
Pump, Centrifugal ..... G. W. Price  
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Pump, Pneumatic ..... W. H. Aunkst  
Pump, Pneumatically-operated.....E. N. and F. J. Ward  
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Pump, Vacuum cleaner ..... C. C. Williams  
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Railways, Signaling and telephone system for ..... W. J. Bailey  
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Razor, Safety ..... E. E. Rogers  
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Razor stop ..... P. M. Elliott  
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Recording device, Automatic electric.....A. Lambot  
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Regulating apparatus ..... H. Bullock  
Road-preparing machine ..... H. F. Berry  
Roasting furnace ..... F. A. Curnow  
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Rock-drilling engine (Reissue).....J. G. Leyner  
Rolling-mill driving pinion.....W. G. Nichols  
Rolling mills, Looping device for.....F. W. Waterman  
Roofing, Sheet-metal ..... K. Roth  
Rope fastener ..... E. D. Wood  
Rotary screen ..... J. C. McIntyre  
Rubber waste, Reclaiming vulcanized (Re-issue) ..... C. S. Heller  
Saddle bag ..... H. F. Given  
Sampler ..... F. H. Peck  
Sardine can ..... W. E. Taylor  
Sash fastener ..... B. G. Dunbar  
Sash lock, Window ..... H. Krahe  
Saw-filing machine ..... F. B. Swigert  
Sawmill-carriage feed ..... C. F. Ashley  
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Scale, Weighing ..... M. A. Duquette  
Screen ..... U. S. Avery  
Screen or separator ..... T. J. Sturtevant  
Seal, Milk-bottle ..... W. D. Hall  
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Self-playing instrument.....P. Duffy  
Sewing-machine attachment.....A. N. Oathout  
Sewing-machine needle-setting means.....J. Kiewicz  
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Sewing machines, Holding means for attachments for ..... B. F. Curtis  
Shade and curtain hanger, Window.....S. D. Welton  
Shade bracket ..... E. L. King  
Shade, Collapsible ..... M. E. Brady  
Shade support ..... A. B. Smith  
Sharpening, Saw ..... R. R. Maxwell  
Shaving mug, Sanitary.....J. B. Rudolph  
Sheet-feeding mechanism.....J. F. Goodridge  
Sheet-feeding mechanism.....R. A. Freeman  
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Sheet separator ..... R. A. Freeman  
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Shirt, Sleeping ..... I. A. Johuson  
Shock absorber ..... A. Peteler  
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Shoe and tread member thereof.....H. F. Crawford  
Shoes, Spike for Baseball.....D. A. Tradesco  
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Signaling device, Electrical.....C. L. Bopp  
Slicer, Bread ..... F. H. Hamblin  
Slicing pickles and the like, Machine for.....S. G. Lipscomb  
Smoke-stack fan attachment.....C. K. Chatterton  
Sod liner ..... R. M. and A. T. Vardaman  
Spar car ..... E. A. and J. F. Gaskill  
Spark plug ..... E. C. Henn  
Spark plug, Terminal connector for.....C. W. Beck  
Speedometer ..... W. R. Dudley et al.  
Spinning or twisting apparatus, Yarn.....G. Bettini  
Spinning spindle ..... C. H. Chapman  
Spring wheel ..... W. A. Crawford-Frost  
Stamp-affixing and envelope-sealing machine ..... F. R. S. Dittmars  
Staple ..... J. N. Moore  
Starting and stopping mechanism.....F. L. MacKenzie  
Station indicator ..... B. F. MacMinn  
Station indicator ..... H. L. Keeler  
Station indicator, Automatic ..... J. W. Ramige  
Steam boiler ..... J. R. Cushing  
Steel, Case-hardened ..... A. F. Shore  
Steel Case-hardening of.....A. F. Shore  
Stereoscopic device ..... J. R. Purvis  
Stirrup leather, Quickly-adjustable.....J. W. Kerr  
Stop mechanism for moving machinery.....A. T. Sampson  
Stove door ..... B. A. Baxter  
Strainer ..... P. G. Jacobson  
Street cleaner, Automatic.....D. Gaul  
Structures, Making ornamental.....A. Fournier  
Stud ..... E. Filipek  
Suction device ..... W. H. Hall  
Superheating apparatus, Steam.....E. A. Geoghegan  
Swing seat, Foldable.....A. K. Bowman et al.  
Syringe ..... O. James  
Syrup ..... W. C. Anderson et al.  
Tag, Vehicle license ..... A. Wakeman  
Talking machine ..... G. Thiel  
Talking machine ..... E. R. Johnson et al.  
Tally-roll attachment ..... J. C. Harvey  
Tank gage ..... E. S. Savage  
Tank gage, Gasoline ..... P. M. Bush  
Target, Self-indicating ..... O. Klein  
Tea kettle ..... J. C. Hollands  
Telephone mouthpiece, Individual ..... C. S. Warren  
Telephone-transmitter attachment.....E. M. Schollenberger  
Thread-cutting machine ..... E. Riley  
Ticket-dispensing machine.....F. Magidson  
Ticket for street cars and similar uses.....L. P. Lipps  
Tie plate (2 pats.).....E. L. Adreon, Jr.  
Tie plate and spike retainer, Combined.....C. W. Quin  
Tie, Railway ..... J. R. Dooley



Timer ..... W. F. Minor  
Tire ..... O. Dimmitt  
Tire chains, Temporary connecting and applying device for automobile..... J. A. Staples  
Tire for the wheels of road vehicles..... A. W. Torkington  
Tire-inflating mechanism, Automobile..... L. L. Brooks  
Tire protector ..... S. S. and D. A. Huffman  
Tire, Resilient vehicle..... J. T. Clark  
Tire, Resilient vehicle..... J. T. Clark  
Tire support ..... L. E. Cadwell  
Tobacco, Cartridge or like charge of..... W. R. Comings  
Towel Sanitary ..... A. P. Linville  
Toy catapult ..... F. W. Pratt et al.  
Toy puzzle ..... C. E. Ashburner  
Traction wheel ..... T. V. Buckwalter  
Transmission mechanism..... H. Devlin  
Trap-door lifter ..... F. Troyer  
Trial or balance sheet..... J. Barker  
Trousers stretcher ..... G. Van Rooijen  
Truck, Baggage ..... T. V. Buckwalter  
Truck, Car ..... H. M. Pfleger  
Truck, Car (5 pats.)..... H. H. Hewitt  
Truck shield ..... A. Manteau  
Truss ..... H. V. Appley  
Truss pad ..... F. L. McWethy  
Tube holder, Collapsible..... F. A. Goppelt, Jr.  
Tubes, Forming ..... J. R. Harbeck  
Tubes, Holding and expelling device for collapsible ..... S. E. Williams et al.  
Tubular fabrics, Machine for making..... A. Petersen  
Tumbler washer ..... T. G. Strator, Jr.  
Turbine ..... E. Josse  
Turbine-governing mechanism..... W. L. R. Emmet  
Type-bar action..... C. Spiro  
Type-casting and similar machine..... C. Crisp  
Type-writer shock absorber..... N. R. Stiles  
Type-writing machine ..... J. H. Barr  
Type-writing machine ..... W. E. Barnard  
Typographical machine ..... D. S. Kennedy  
Typographical machine ..... L. E. Morrison  
Universal joint ..... E. Hermann  
Valve and lighter, Gas burner..... J. Holtzman  
Valve, Automatic gas-shut-off..... I. Glanschnig  
Valve, Blow-off ..... C. E. Vance  
Valve, Check ..... J. J. Thelen  
Valve gear, Engine ..... R. C. Stevens  
Valve, Globe ..... A. O. Levick  
Valve, Hydropneumatic ..... L. D. Berg  
Valve mechanism..... J. Cevasco et al.  
Valve-operating mechanism..... M. E. Bertram  
Valve-operating mechanism for engines..... H. B. Briggs  
Valve or the like ..... O. A. Ross  
Valve, Piston (2 pats.)..... J. T. Wilson  
Valve, Rotary ..... M. Jaeger  
Valve, Supply ..... J. J. Meyer  
Valves, Packing for piston..... J. T. Wilson  
Vaporizer ..... G. A. Arnold  
Vehicle Ash and refuse ..... C. Putzel  
Vehicle driving gear, Motor..... E. V. Varcoe  
Vehicle, Motor ..... H. Zielinski  
Vehicle, Motor (2 pats.)..... R. Huff  
Vehicle spring device..... R. W. L. Donlan  
Vehicle wheel ..... C. L. Schwarz  
Vehicle wheel ..... G. J. and H. C. Garrett  
Vehicle wheel ..... F. O'Neill  
Vehicle wheel ..... J. Guerrero  
Vehicle wheel ..... C. G. Johanson  
Vehicle wheel, Resilient (2 pats.)..... H. S. Grace  
Vehicle with cellular partitions, boxes, or drawers which are let separately for the conveyance of goods..... C. Isidor  
Vehicles, Wheel mount for..... W. Hart  
Vending machine ..... G. W. Miller  
Vending machine ..... O. J. Hotaling  
Vending machine, Coin-controlled..... F. A. Bowers  
Ventilator ..... J. Christie  
Ventilator and advertising device, Combined ..... R. E. Carswell  
Vessel, Submarine ..... H. G. Cady  
Voting machine ..... J. H. Dean  
Voting machine ..... A. J. Gillespie  
Voting machines, Cumulative-voting mechanism for ..... W. J. Lansterer  
Wagon-seat clamp ..... J. Kiefer  
Wardrobe ..... J. A. Lindberg  
Waste and overflow fixture..... W. Cantlon  
Water-elevating apparatus ..... L. Stowe  
Water elevator ..... H. Cole  
Water gage ..... G. J. Hatz  
Water gage, Automatic shut-off..... K. Pap  
Water-gap gate ..... A. Sattler  
Water heater and steam generator, Combined ..... J. J. Rohan  
Water-heating apparatus ..... W. Hawks  
Weaner, Colt ..... W. P. Ellison  
Web-cutting machine ..... A. J. Cumnock  
Weighing machine, Automatic..... H. W. Welsh  
Weir gage, Automatic..... G. Barzee et al.  
Welding apparatus, Acetylene ..... G. C. Schemmel  
Welding chain links, Electrically..... W. H. Hodges  
Well casing head, Oil and gas..... J. T. Callanan  
Well-drilling apparatus ..... J. and M. M. Maher et al.  
Wheel-truing device ..... W. Heller  
Wick, Lamp ..... W. R. Arnold  
Window ..... A. C. Soule  
Window-cleaning device..... E. U. Daines  
Window-operating mechanism..... W. von Wolftradt  
Wire-feeding mechanism..... G. A. Ambler  
Wire-stranding machine..... W. O. Larmuth  
Wrench ..... F. N. Martindale  
Wrench ..... F. Waldner  
Wrench ..... O. A. Nordlund  
Wrench ..... P. Balko  
Yarn residues from bobbins, spools, and the like, Means for removing..... P. Jeanmaire

Aeronautical apparatus..... C. D. Burney  
Agricultural machine ..... G. Trompeter  
Air-conditioning apparatus (3 pats.)..... S. W. Cramer  
Alarm system ..... O. B. Kaiser  
Alcohol or powder appliance..... S. A. Miller  
Alloys, Manufacture of sodium..... E. C. Rossiter  
Ammonia from ammoniacal gases or vapors, Producing sulphate of..... H. Koppers  
Animal trap ..... H. F. Coleman  
Annealing apparatus ..... H. Hillebrand, Jr.  
Annunciating systems, Operating mechanism for ..... F. Michaelis  
Antisifting box or carton..... A. H. Dreux  
Antiskidding device for vehicle wheels..... W. H. Snyder  
Ash ejector ..... J. H. Snelling  
Automobile hood ..... H. Cohen  
Automobile jack and reversing stand..... H. C. Roberts  
Automobile safety device..... O. N. Applequist  
Automobile tops, Device for raising and lowering ..... O. Cook  
Automobile transmission ..... H. Ford  
Axe set ..... T. H. Rae  
Baby protector ..... J. E. Dodd  
Baking device ..... M. L. Hitchcock  
Baler tying device, Hay..... W. H. Leavitt  
Baling presses, Block placer for..... L. B. Wygant  
Ball-and-socket joint ..... H. Mayer et al.  
Barber's chair ..... T. J. Howard  
Barrel, Metallic..... G. J. Clark et al.  
Bath tub, Baby's portable collapsible..... P. O. Owsley  
Batteries, Treated wood for use in electric storage ..... B. Heap  
Bearing, Annular ball ..... J. W. Schatz  
Bearing, Ball ..... J. W. Schatz  
Bearing, Roller ..... W. E. Lewis  
Beater and mixer ..... N. G. Jennings  
Bed-support for hospitals or sick rooms..... H. Weimer  
Beehive ..... H. Anderson  
Belt fastener (2 pats.)..... I. Jackson  
Bench drill ..... G. O. Leopold  
Bill fold ..... J. A. Helwig  
Blind, roller blind, and the like..... J. A. Hedberg  
Blinker stay ..... J. F. Faust  
Bobbin winder ..... A. Belz  
Boiler-water-level-indicating device..... M. G. Quigley  
Bonnet, Automobile..... M. F. Harris  
Bookbinding and covering machine..... A. Bredenberg  
Boot and shoe buffing machine..... D. N. Robertson  
Bottle-filling apparatus, Siphon..... J. A. Schultz, Jr.  
Bottle, Non-refillable ..... J. F. Jensen  
Bottle stopper ..... F. L. Siegel  
Bow rest and lock, Combined..... D. J. Macdonald  
Bowling alleys, Back stop for..... H. F. Cook et al.  
Bowling outfit ..... P. Makray  
Braiding machine ..... S. W. Wardwell  
Braiding machine ..... O. A. Albrecht  
Brush holder ..... H. J. Conklin  
Bucket attachment, Minnow..... C. F. Kraning  
Buckle, Belt ..... J. Haller  
Buckle, Belt ..... T. F. Maloney  
Building construction (2 pats.)..... P. M. Stewart  
Bullet, Mushroom ..... F. O. Hoagland  
Bunion shield or protector..... R. E. Turner  
Calendar, Automatic..... A. T. Zabriskie  
Can opener ..... J. E. Loureiro  
Caoutchouc substance and making same..... C. Harris  
Capsule-filling mechanism..... J. P. Remington  
Car adapted for subway use..... A. B. Du Pont  
Car brake ..... O. O. Byrd  
Car brake beam, Railway..... S. A. Crone  
Car construction Railway post office..... C. R. Harrison  
Car construction, Tank..... C. L. Kennicott  
Car coupling ..... J. Kovacs  
Car-coupling mechanism..... J. Willison  
Car-coupling-repairing device..... J. Zilius  
Car door, Grain ..... T. Sills  
Car draft rigging, Draft yoke for railway..... S. E. Haseltine  
Car draft rigging, Railway (2 pats.)..... J. F. O'Connor  
Car draft rigging, Railway (2 pats.)..... G. A. Johnson  
Car loader, Box ..... A. J. Vivian  
Car, Railway ..... J. P. Leggett  
Car spring ..... G. B. Dorey  
Car stake ..... L. L. Bartlett  
Car wheels, Manufacturing..... H. R. Keithley  
Carburetor ..... E. Sprung  
Carburetor ..... C. H. Claudel  
Carpet sweeper, Suction..... J. M. Spangler  
Carriage, Child's ..... W. W. Williams  
Carriage for ropeways and the like..... F. Dohle  
Cartridge-making machine..... H. D. Hodge  
Carving machine ..... M. F. Tunes  
Chart, Saloon-stock-recording..... C. C. Rush  
Check-issuing machine..... E. T. Middlemiss  
Cigar holder ..... J. J. Zarker  
Cigarette ..... J. Kattar  
Clay-granulating apparatus ..... F. Lambert  
Climbing device, Pole..... W. S. Morris  
Clip-fastening, Metallic..... G. H. Barbour  
Clothes-hanger rack ..... W. M. Johnson  
Clothes-line hanger ..... J. J. Gould  
Clothes-line tightener..... D. Palin  
Cock-seat dresser guide, Ball..... G. W. Redeker  
Cocoa derivative and separating constituents of the cacao bean..... R. N. Riddle  
Coin-package wrapper..... C. S. Batdorf  
Collar, Soft fold ..... H. F. Hurd  
Combination lock for plug-and-socket fixtures ..... G. I. Silbert  
Concrete distributor (Reissue)..... P. A. Koehring  
Concrete railway tie..... C. E. Lease  
Condensing mixtures of hydrocarbon and steam, Cooler for..... C. Still  
Controller ..... C. E. Cochran  
Cotton chopper ..... S. H. Liles et al.  
Cover fastener ..... E. F. Jones  
Cover fastener ..... B. F. Ford  
Covering machine ..... A. Beutler  
Crate, Breeding ..... J. D. Spangler  
Crate, Crab ..... C. A. Looekerman  
Cross tie ..... H. L. Day

Cultivator, Orchard ..... E. Brown  
Curling iron Electrically-heated..... F. A. English  
Current-machine-controlling system, Alternating ..... G. Winter et al.  
Curtain stretcher ..... S. Gleaves  
Curtain stretcher, Lace..... A. Rogalski  
Cuspidor, Sanitary..... M. Plocher et al.  
Cutter (2 pats.)..... E. Lawrenz  
Cutting device ..... E. N. Humphrey  
Decanting or settling liquids, Apparatus for ..... R. Korner  
Desk ..... C. E. Wilsou  
Disks and colters when they are being sharpened, Holder for..... J. J. Hinds et al.  
Display device..... L. J. E. Colardeau et al.  
Display rack ..... S. Biasatti  
Display stand and counter, Combination..... W. P. Jones  
Distilling petroleum, Process of and apparatus for ..... J. W. Van Dyke et al.  
Ditching machine ..... J. E. Funk  
Diving apparatus ..... H. Stelzner  
Door ..... A. H. Newpner  
Door buffer ..... T. M. Lavelle  
Door, Grain ..... J. Woods  
Door hanger ..... C. C. Nelson  
Door hanger, Sliding ..... J. Stolz  
Door holder and stop..... M. J. Kenny  
Door-locking device, Double..... J. C. Hogan  
Door opener ..... F. Conner  
Door securer ..... G. M. Huston  
Door spring and check..... I. B. Taft  
Dowel ..... T. Tissier  
Draft appliance ..... J. A. Buchanan  
Draft appliance ..... H. P. Petersen  
Draft rigging..... G. H. Gilman et al.  
Drawer-locking mechanism, Superposed..... P. S. Millice  
Drier ..... W. H. Matthew  
Drilling machine ..... E. Cook  
Drilling machine ..... E. C. Bowers et al.  
Drink from dairy residues, Manufacture of a salutary ..... A. Jolles  
Drinking cup ..... S. Elliott  
Dumb-waiter ..... J. M. Birchler  
Eccentric, Adjustable ..... W. M. Lanning, Jr.  
Elastic wheel ..... K. Koszegi  
Electric machine, Dynamo (2 pats.)..... G. Winter et al.  
Electric switch ..... F. J. Robinson  
Electric vulcanizer ..... F. Martin  
Electrolytes for use in the deposition of a metal or metallic alloy, Preparing..... P. Marino  
Electrolytic cell..... E. A. and H. I. Allen  
Electrotype shells in the manufacture of electrotypes plates, Backing up..... G. E. Dunton  
Embroidering machines, Counterbalancing mechanism for ..... J. A. Groebli  
Embroidery frame ..... J. Nitschman  
Engine-cooling means, Internal-combustion..... G. Westinghouse  
Engine-lubricating system, Rotary..... W. I. Twombly  
Engine starter, Explosive..... G. H. Kelley  
Explosive ..... J. F. O'Brien  
Extension and retraction device..... A. Siewert  
Extension table ..... J. Hofmayr  
Fabric holder and exhibitor..... F. A. Raabe  
Farm gate ..... J. W. Snedeker  
Feed-head fastener ..... C. I. Dodson  
Feed regulator ..... W. Watts  
Feeding mechanism..... C. A. Cheshire  
Fence clamp, Wire ..... H. W. Gaines  
Fence gate ..... H. G. Bemis  
Fence-post mold ..... S. L. Clark  
Fence-post molding ..... S. L. Clark  
Filing case ..... M. L. Whitcomb  
Film-pack adapter..... F. Schmid  
Fire door ..... R. W. Zeller  
Fire escape ..... R. Sideman  
Fire-hose rack ..... W. McClintock  
Firearm ..... J. C. White  
Fishing rod ..... C. E. Long  
Flange lubricator ..... H. W. Coddington  
Flue, Heating ..... W. J. Kenely  
Fluid-pressure switch ..... J. A. Schadel  
Fly trap ..... W. I. Waggoner  
Flying machine ..... H. G. Morris  
Flying machine ..... G. E. Dickson  
Folder or container for goods..... W. H. Hart, Jr.  
Folding box ..... P. E. Brame  
Force-feed lubricator ..... A. Kirkham  
Form or stand, Dress..... F. A. Monahan  
Furnace ..... H. A. Poppenhusen et al.  
Furnace-door frame, Water-cooled..... L. L. Knox  
Furnaces, Feeding twyer for ore treating..... E. E. Banes  
Furnaces, Process of and apparatus for feeding cars into and through tunnel..... A. H. Cowles  
Game register ..... D. L. Martin et al.  
Garment ..... C. N. Dunbar et al.  
Garment holder and shape retainer..... I. Bernstein  
Gas engine, Two-cycle..... C. S. Slose  
Gas producer ..... J. A. Herrick  
Gas purifiers, Closure for..... E. F. Lloyd  
Gas-scrubbing apparatus ..... E. F. Lloyd  
Gases, Apparatus for the purification of electrolytic ..... A. E. Knowles  
Gases, Burning natural and other..... B. E. Eldred  
Gate-operating means..... C. W. Witsil  
Gearing ..... F. C. Youngerman  
Gearing, Reversing ..... F. P. Soprano  
Grain-separating machine ..... M. Weaver  
Grain shocker ..... R. Woods  
Grease cup ..... S. W. McKillop  
Grinding machine ..... J. E. Crandall  
Gripping device ..... W. E. Miller  
Gun, Air (2 pats.)..... A. Wissler  
Halter-rope clip..... A. Freeman  
Hammer, Registering branding..... C. W. Wright  
Harrow ..... T. V. Barnard  
Harrow, Disk ..... F. K. Lathrop  
Harvesting machine, Corn..... O. P. Vroom  
Harvesting machines, Motor-supporting bracket for ..... E. B. Cushman  
Hat case, Lady's ..... N. H. Ward  
Hat fastener ..... E. T. Miller  
Hat pin ..... L. M. Morgan  
Hay press ..... E. L. Tatum  
Heater ..... W. S. Elliott  
Heating apparatus, Liquid-fuel ..... F. P. Shoemaker  
Hinge ..... G. Steingruber  
Hinge, Concealed ..... E. N. Baldwin, Jr.

Hole-shaping machine, Non-circular..... E. Lauterjung  
Honer and stropper ..... A. C. Hayden  
Honey jar ..... H. Anderson  
Hopper, Gravel ..... F. E. Klunker  
Horseshoe calk ..... J. S. Holliday  
Horseshoe calk ..... E. H. Trundle  
Hose clamp ..... M. W. Shipp  
Hydrocarbon motor ..... F. H. Trego  
Hydrocarbons, Obtaining a charge liquid particularly adapted for explosion motors from liquid ..... R. Hense  
Hydroplane for submersible boats, Folding ..... G. C. Davison  
Igniter, Make-and-break..... H. W. Bolens  
Illuminated fountain ..... J. H. Reichart  
Illuminating device ..... J. Lafitte  
Implement, Compound ..... J. H. Biehl  
Incubator ..... E. W. Andrews  
Ingot molds, Apparatus for handling..... S. T. Wellman et al.  
Internal-combustion engine..... N. A. Christensen  
Internal-combustion engine..... E. T. Young  
Iron ..... J. R. Ricketts  
Ironing board ..... C. Danielson  
Ironing table ..... G. C. Henne  
Jacquard mechanism ..... J. A. Groebli  
Key-seat-broaching machine..... F. J. Lapointe  
Kinematograph apparatus ..... W. Chipperfield et al.  
Knitting machine ..... F. Wilcomb  
Knockdown box ..... E. F. Jones  
Lace, Shoe ..... E. Kempshall  
Lamp burner ..... V. H. Mills  
Lamp extinguisher ..... I. Greenwald et al.  
Lamp Socket, Incandescent..... J. H. A. Gardiner  
Lamp socket ..... F. Dietz  
Lamps, Suspension coupling for are..... B. Bruders  
Land leveler ..... J. M. Roberts  
Land roller ..... M. Anderson  
Lantern, Tubular ..... C. L. Betts  
Lap robe for automobiles, &c..... L. W. House  
Lasting strip ..... W. B. Keighley  
Lead and zinc, Separation of..... J. Babe  
Leather packing ..... H. Talent  
Levee ..... J. W. Mosher  
Lighter ..... C. Ganz  
Liquid-dispensing apparatus..... J. J. C. Meyer  
Loom for weaving..... A. G. Koehlin  
Mail-bag holder ..... G. W. Curtis  
Match cards, Machine for making..... C. Campus  
Match machine, Book..... C. Campus  
Measuring cup, Strainer..... L. F. Kerlinger  
Measuring instrument, Electrical..... C. M. Crook  
Mechanical movement ..... J. T. Helms  
Merry-go-round ..... W. S. Tothill  
Metal-shearing machine ..... J. W. Branson  
Metals by fusion, Electric deposition of..... A. P. Strommenger  
Microscope, Corneal ..... C. H. Pixley  
Milking apparatus ..... A. F. Stephens  
Mine, Submarine ..... E. Schneider  
Mining machine ..... E. R. Merrill  
Minnow ..... C. Wilt  
Miter clamp, Multiple-joint..... F. Wagner  
Molding machine (2 pats.)..... J. H. Burpee  
Mop stick ..... J. J. Beam  
Motion, Means for converting rotary into reciprocating ..... M. A. Droicour  
Mucking apparatus ..... W. E. Trent  
Musical instruments, Wind-inducing device self-playing ..... L. B. Doman  
Needle, Sewing ..... W. J. Kendig  
Negative-outline-indicating device..... U. Roberts  
Note case, Banker's ..... A. V. Kouba  
Nozzle, Spraying ..... J. W. Potter  
Nut lock ..... J. Schlutter  
Nut, Lock ..... K. Kessler  
Nut-shelling machine ..... A. Paul  
Oil burner ..... L. Tozer  
Oil burner, Crude ..... U. B. and J. S. Patrick  
Oil can ..... A. T. Booth  
Operating mechanism..... J. Dietz  
Ordnance (2 pats.)..... W. D. Smith  
Ore classifier ..... J. W. Shields et al.  
Ores, flue dust, and the like, Utilizing fine ..... H. C. Wolle et al.  
Ores, Process and apparatus for treating sulphide ..... E. E. Banes  
Packing shield, Hydraulic..... C. H. Watts  
Penholder ..... G. F. Erunkerhoff  
Penholder or pencil brace..... C. A. Beaudon  
Petroleum and other hydrocarbon burner..... A. Brunette  
Photograph-printing device..... A. E. Lipp  
Picture film, Moving..... C. E. Dressler et al.  
Pilot lighter ..... P. M. Boeck  
Pipe patch ..... J. Marmorstein  
Pistol ..... L. Woods  
Piston-rod lubricator..... C. Palomo y Goidandia  
Planing machine ..... P. A. Solem  
Plant supporter ..... S. Gudgeon  
Planter ..... C. R. Davis  
Planters, Automatic device for corn..... D. W. McProud  
Plow attachment ..... F. Muntz  
Plow, Engine gang..... W. L. Paul  
Plow, motor ..... J. N. Parker  
Pneumatic wheel ..... S. W. Scott  
Preserving apparatus ..... O. H. Mohr  
Printer's form clamp..... T. Dempster  
Printer's plate-holding device..... F. W. Weston  
Printing machines, Sheet-delivery apparatus for ..... H. M. Barber  
Printing or stenciling apparatus..... F. W. Adams  
Printing press ..... J. J. Walser  
Printing-press tray-slide attachment ..... W. G. Humphrey  
Propeller ..... H. Faehrmann  
Pump for liquids, Pneumatic-operated..... H. W. Coplestone  
Pump, Well ..... R. H. Knipping  
Radiator-cell section..... H. C. Harrison et al.  
Rail, Compound (3 pats.)..... E. P. Caldwell  
Rail joint (Reissue)..... F. Hoch  
Railway carriages, wagons, and the like, Automatic coupling for..... V. W. J. Smith  
Railway draft rigging, Draw bar and yoke connection for ..... W. H. Miner  
Railway safety and signaling device..... D. C. Newton  
Refacing and recoutherboring tool ..... A. N. Rutan  
Refrigerator, Evaporative..... A. L. Van Buskirk  
Resistance unit..... W. L. Bliss  
Rheostat ..... D. P. Ruger

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#### MECHANICAL PATENTS.

Acid and preparation of the same, N-halo-genalkyl-C. C-dialkylbarbituric... O. Wolfes



Rim, Demountable ..... A. McPherson  
Rings, Tool for applying travelers to ..... H. W. Owen  
Roof construction ..... H. F. Winkelmann  
Roofing tool ..... T. C. Holsclaw  
Rope fitting ..... E. R. Shnoble  
Rubber substitute ..... J. B. Seammell  
Rugs, mats, carpets, &c., Fastening for ..... F. W. Giller et al.  
Sad iron ..... L. Rosenbaum  
Sad-iron holder ..... M. Frost  
Salts from solutions containing them, De-  
position of metallic ..... H. J. Rees  
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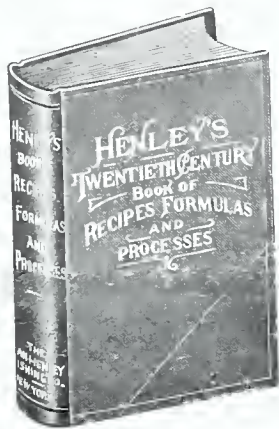
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